UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

GORDON SCHIFF and **CELESTE ROYCE**, *Plaintiffs*, v. **U.S. OFFICE OF PERSONNEL MANAGEMENT**; **CHARLES EZELL**, in his official capacity as Acting Director of the U.S. Office of Personnel Management; **U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES**; **ROBERT F. KENNEDY, JR.**, in his official capacity as Secretary of Health and Human Services; **AGENCY FOR HEALTHCARE RESEARCH AND QUALITY**; and **MAMATHA PANCHOLI**, in her official capacity as Acting Director of the Agency for Healthcare Research and Quality, *Defendants*.	Case No. 25-cv-10595-LTS

DECLARATION OF CELESTE ROYCE

I, Celeste Royce, declare under penalty of perjury that the following is true and correct:

1. I am a Plaintiff in this action. I offer this declaration in support of Plaintiffs' Motion for a Preliminary Injunction. I have personal knowledge of the facts set forth in this declaration and could testify competently to those facts if called as a witness.

2. I live in Boston, Massachusetts.

Background

3. I am an Assistant Professor of Obstetrics, Gynecology and Reproductive Biology at Harvard Medical School ("HMS"). At HMS, I am the Vice Chair of the Clerkship Education Committee for the Department of Obstetrics, Gynecology, and Reproductive Biology; Course Director for several courses; and serve on several committees.

4. I am board-certified with the American Board of Obstetricians and Gynecologists.

5. I have practiced medicine as an obstetrician-gynecologist physician since 1993 and continue to see patients at Beth Israel Deaconess Medical Center ("Beth Israel"), where I work in the Department of Obstetrics and Gynecology.

6. At Beth Israel, I am the Director of Simulation and Director for Undergraduate Medical Education, and I serve on the Quality Assurance and Clinical Competency Committees for the Department of Obstetrics and Gynecology.

7. At Beth Israel, I am the Co-Director of the Rabkin Fellowship in Medical Education.

8. I have a Doctor of Medicine degree from the University of California, Los Angeles, and a Bachelor of Arts degree from the University of California, Santa Barbara.

9. I am licensed to practice medicine in the State of Massachusetts.

Career and Research

10. I have been working in OBGYN, medical education, and patient safety, as a practitioner, teacher, researcher, institutional leader, and patient and policy advocate for more than three decades. My main areas of interest and contribution have been in quality improvement in women's health, reducing diagnostic and treatment errors, and improving medical education and clinical reasoning.

11. Through my training and practice, I am deeply familiar with the prevailing medical standards and protocols for patient safety and diagnostic safety. I am a member of the Primary-Care Research in Diagnosis Errors ("PRIDE") Learning Network created by the Betsy Lehman Center for Patient Safety and the Commonwealth of Massachusetts. At Beth Israel, I serve on the Quality Assurance and Clinical Competency committees for the Department of Obstetrics and

Gynecology. I am also a Fellow of the American College of Obstetricians and Gynecologists and of several other societies.

12. Throughout my career, I have focused on improving my ability to make diagnoses for my patients, as well as educating the broader community of healthcare providers to prevent diagnostic errors and improve patient and medication safety.

13. I have authored sixteen peer-reviewed publications in print and other media, fifteen other peer-reviewed publications, and dozens of reports, workshops, presentations, and guidelines. I also serve as a peer reviewer for several medical journals.

14. I have developed several complete curricula focused on developing medical and clinical thinking, including five curricula published in the Association of American Medical Colleges' *MedEdPORTAL*, a peer-reviewed online journal of teaching and learning resources for medical educators. Additional curricula that I developed have been adapted into the BRIDGES clinical-medicine course at Harvard Medical School and featured at the American Medical Association's national conference.

15. I have delivered several presentations to professional organizations focused on patient safety, including the Betsy Lehman Center for Patient Safety and the Beth Israel Silverman Institute for Health Care Quality and Safety.

16. Through these projects and others, I have helped doctors and medical students develop clinical reasoning and combat cognitive biases that lead to diagnostic error.

17. A true and correct copy of my CV is attached as Exhibit 1.

Publications on WebM&M and PSNet

18. I have authored two commentaries featured on Patient Safety Network ("PSNet").

19. In 2023, I was the lead co-author on a commentary featured on PSNet: "The Time is Now: Addressing Implicit Bias in Obstetrics and Gynecology Education," which was originally published in the *American Journal of Obstetrics and Gynecology*.

Drafting and Publication of *Endometriosis Commentary*

20. In January 2020, I co-led a conference, hosted by the PRIDE Learning Network, on a case of delayed endometriosis diagnosis.

21. Endometriosis is a condition wherein cells similar to the lining of the uterus grow outside the uterus. Endometriosis can cause pain and lead to excessive bleeding and even infertility.

22. The 2020 conference brought together health care providers to discuss lessons learned from a practitioner's misdiagnosis of a case of endometriosis. In that case, a 15-year-old female with no prior medical problems developed menstrual cramps and heavy bleeding at the onset of her first menstrual period. Throughout the next nine years, the patient's symptoms worsened to include severe abdominal cramps, bloating, nausea, and diarrhea. During this period, her primary care provider, two gynecologists, and a gastroenterology specialist all provided her with inaccurate diagnoses. Providers repeatedly dismissed her symptoms as psychological or implied that their severity was due to a mental health condition. Only twelve years after her initial symptoms, following an emergency appendicitis and biopsy, did a third gynecologist accurately identify her condition as endometriosis.

23. Following the conference, Dr. Malcolm Mackenzie and I worked to draft a commentary on the endometriosis case study throughout the spring of 2020. We sought to examine the missed opportunities for timely diagnosis in that particular case and highlight general challenges and sources of delay common in endometriosis cases. Dr. Gordon Schiff provided editorial support for this commentary.

24. Dr. Schiff submitted a draft of *Endometriosis Commentary* to PSNet on May 3, 2020. As submitted, our commentary acknowledged several diagnostic challenges common in endometriosis cases, including a "lack of understanding" surrounding the fact that "endometriosis can occur in trans and non-gender-conforming people." As a result, Dr. Mackenzie and I suggested that "endometriosis should be considered in the differential diagnosis for any person presenting with chronic abdominal or pelvic pain."

25. On May 7, 2020, I received an email from Dr. Deb Bakerjian, who encouraged us to reduce focus on the details of endometriosis and instead increase emphasis on how and why the diagnostic process went awry at various points. None of Dr. Bakerjian's comments in that email mentioned the sentence regarding "trans and non-gender-conforming people."

26. On May 7, 2020, I also received an email in which Dr. Patrick Romano responded with recommendations for disentangling the interplay of diagnostic and other medical issues. None of Dr. Romano's comments in that email mentioned the sentence regarding "trans and non-gender-conforming people." A true and correct copy of the email is attached as Exhibit 2.

27. On May 4, 2020, Dr. Bakerjian added in-text comments to the working draft of *Endometriosis Commentary* in Microsoft Word. The following day, Dr. Romano added in-text comments to the draft. Neither Dr. Romano nor Dr. Bakerjian offered any comments or in-text edits related to the sentence "not[ing] that endometriosis can occur in trans and non-gender conforming people."

28. In response to these emails and in-text comments from Dr. Bakerjian and Dr. Romano, my co-author and I revised the draft to align more closely with the patient safety focus of PSNet.

29. On May 7, 2020, my co-author and I finalized the draft for publication.

30. At no time in the editorial process did any member of the Editorial Team—or AHRQ staff or anyone else—suggest that language noting that "endometriosis can occur in trans and non-gender-conforming people" was inaccurate, outside the bounds of PSNet's focus on patient safety, or otherwise outside the bounds of their selection or publication criteria.

31. On June 24, 2020, PSNet published *Endometriosis Commentary*, including the statement that "endometriosis can occur in trans and non-gender-conforming people and lack of understanding this fact could make diagnosis in these populations even more challenging." At the bottom of the publication, a disclaimer stated, "The authors are solely responsible for this report's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this report as an official position of AHRQ or of the U.S. Department of Health and Human Services." A true and correct copy of the final *Endometriosis Commentary* is included as Exhibit 3.

32. When *Endometriosis Commentary* was published, I updated my CV to include it in my list of publications. *See* Exhibit 1.

33. *Endometriosis Commentary* was cited, paraphrased, and discussed at length in publications outside PSNet by other authors seeking to highlight diagnostic challenges in endometriosis cases, such as in a book chapter on diagnostic difficulties and the Journal of the Association of Perioperative Registered Nurses. True and correct copies of these publications are included as Exhibits 4 and 5.

34. My understanding is that *Endometriosis Commentary* remained online and available until at least January 20, 2025.

Removal of *Endometriosis Commentary*

35. On February 3, 2025, Dr. Romano emailed me, my co-author, and Dr. Schiff to inform us that *Endometriosis Commentary* and other "factual and unbiased content" had "been removed from the PSNet website due to a perception that it violates the White House policy on websites 'that inculcate or promote gender ideology.'" A true and correct copy of that email is attached as Exhibit 6.

36. On February 6, Dr. Romano emailed me, my co-author, Dr. Schiff, and other "Harvard-affiliated PSNet colleagues" to explain that the language triggering the removal of *Endometriosis Commentary* from PSNet was the sentence including the phrase "it is important to note that endometriosis can occur in trans-and non-gender conforming people and lack of understanding this fact could make diagnosis in these populations even more challenging." In that same email, Dr. Romano informed us that "AHRQ has received approval to re-post your original commentaries, which we have been discussing over the last several days," but only on the "non-negotiable" condition of "the removal of the problematic words – i.e., the words 'transgender' and 'LGBTQ.'" Dr. Romano also wrote that, for *Endometriosis Commentary*, "this entails editing out just the very last sentence ('Although not germane to this particular case, it is important to note that endometriosis can occur in trans . . ' [sic]." Dr. Romano indicated that, if my co-author and I agreed to these changes, we could also include an editor's note indicating that the article was updated to comply with the Executive Order, "Defending Women from Gender Ideology Extremism and Restoring Biological Truth to the Federal Government." A true and correct copy of that email is attached as Exhibit 7.

37. On February 7, I replied to Dr. Romano by email to convey that I would approve reposting *Endometriosis Commentary* with the editor's note and with the last sentence revised to

provide, " . . . it is important to note endometriosis can occur in any woman and is a rare but possible diagnosis in men." I wrote that I would not approve of deleting the sentence, "since the whole point of the piece is endo is frequently missed or delayed in diagnosis, and this sentence is encouraging readers to have an open mind." A true and correct copy of that email is attached as Exhibit 8.

38. Dr. Romano responded by email later that day rejecting my alternate language and reiterating that "the condition for restoration is non-negotiable." Dr. Romano further stated, "It is the Administration's view that the terms men, man, male, etc., must only be used for persons who are biologically male (which they define as 'the sex that produces the small reproductive cell.')." He stated that "in the Administration's view, endometriosis is not a possible diagnosis in men" and included a link to the Executive Order. A true and correct copy of that email is attached as Exhibit 9.

39. On February 10, Dr. Romano emailed me and my co-author to report that my proposal had been accepted. The revised sentence would read: "Although not germane to this particular case, it is important to note that endometriosis can occur in any woman and is a rare but possible diagnosis in men." A true and correct copy of that email is attached as Exhibit 10.

40. On February 12, Dr. Romano emailed again to retract that proposed course of action, stating that the revised sentence was not permissible. He clarified that the only way to repost *Endometriosis Commentary* would be "to completely remove the final sentence (which was deemed non-compliant with the President's Executive Order)." Dr. Romano clarified what he and the other PSNet editors had been told: "To quote, 'we must not use any reference to transgender no matter how hidden we make it. We need to respect this decision . . .'." In the same email, Dr.

Romano also informed us that none of the other teams who were offered an option to republish a censored article chose to do so. A true and correct copy of that email is attached as Exhibit 11.

41. As of March 31, 2025, *Endometriosis Commentary* remains unavailable on PSNet.

Consequences of the Government's Removal of *Endometriosis Commentary*

42. PSNet is a major publication in the patient-safety academic field because it has a wide readership and is known for publishing high-quality articles that practitioners and patients can rely on. It is widely considered the premier patient-safety website in the United States and internationally. For AHRQ and HHS to remove *Endometriosis Commentary* reduces my standing in the academic community because I have been deprived of a placement in the premier patient-safety publication and the opportunity to be credited for the commentary through a citation in future research. I will also need to revise my CV to remove this commentary from my publications.

43. At Harvard Medical School, I am in the process of seeking promotion from Assistant Professor to Associate Professor. Promotion to Associate Professor would mean an increased salary and eligibility to join national committees and editorial boards.

44. Because this promotion is currently pending, the removal of my work from PSNet threatens to decrease the likelihood of the promotion's approval. The removal of my work from PSNet therefore threatens to damage my earning power, academic rank, and participation in scholarly organizations.

45. In the future, I expect to submit commentaries for WebM&M *Case Studies* for publication on PSNet. However, given the Trump Administration's ongoing censorship of terms that "promote or inculcate" what it deems to be "gender ideology," my ability to offer a full commentary and views on medical cases will be restricted. Moreover, none of the Defendants have produced a full list of terms that will trigger their removal of PSNet articles. To avoid the

censorship and removal of my future commentaries, I will need to steer clear of expressing my views related to gender and its connection to patient safety—regardless of how much evidence and expertise might inform those views.

46. The success of the study of patient safety hinges on preserving the free exchange of ideas, scientific integrity, and evidence-based inquiry. These same objectives are central to PSNet and the WebM&M *Case Studies* series.

47. In my four decades as a practitioner, teacher, researcher, institutional leader, and advocate, I have never before now encountered an effort by the government to stifle the exchange of ideas in the field of patient safety.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 31, 2025, in Boston, Massachusetts.

Plaintiff Celeste Royce

EXHIBIT 1

Curriculum Vitae

Date Prepared: February 6, 2025

Name: Celeste S. Royce, MD

Office Address: [redacted]

Home Address: [redacted]

Work Phone: [redacted]

Work Email: [redacted]

Place of Birth: St. Louis, MO

Education

06/1985	BA with Honors	Biochemistry, Molecular Biology, and Zoology	University of California, Santa Barbara
05/1989	MD	Medicine	University of California, Los Angeles (UCLA)
01/2013		Clerkship Director's School	Association of Professors of Gynecology and Obstetrics (APGO)
01/2013-03/2014		Academic Scholars and Leaders Program (Advisor: Nadine Katz, MD)	APGO
09/2016-06/2017		Medical Education Fellowship	The Academy at Harvard Medical School (HMS)

Postdoctoral Training

06/1989-06/1990	Internship	Obstetrics and Gynecology (OBGYN)	Harbor/UCLA Medical Center Torrance, CA
07/1990-07/1993	Residency	OBGYN	Harbor/UCLA Medical Center Torrance, CA

Faculty Academic Appointments

1997-1998	Instructor	OBGYN	Penn State Geisinger Medical Center, Danville, PA
2010-2019	Instructor	OBGYN	HMS Boston, MA
2019-	Assistant Professor	OBGYN	HMS Boston, MA

Appointments at Hospitals/Affiliated Institutions

1993-1997	Staff Physician	Department of OBGYN	Alta Bates Medical Center Berkeley, CA
1997-1998	Staff Physician	Department of OBGYN	Penn State Geisinger Medical Center, Danville, PA

1999-2005	Staff Physician	Department of OBGYN	Santa Barbara Cottage Hospital Santa Barbara, CA
1999-2005	Staff Physician	Department of OBGYN	Sansum Santa Barbara Medical Clinic Foundation, Santa Barbara, CA
2005-2010	Staff Physician	Department of OBGYN	Anna Jaques Hospital Newburyport, MA
2010-2021	Staff Physician	OBGYN Service	Bowdoin Street Health Center Dorchester, MA
2010-	Staff Physician	Department of OBGYN	Beth Israel Deaconess Medical Center, Boston, MA (BIDMC)

Faculty Membership in Harvard Initiatives, Programs, Centers, and Institutes

2012-	Member	BIDMC Academy of Medical Education	BIDMC
2013-	Member	The Academy	HMS
2017	Shapiro Institute Scholar	Shapiro Institute for Education and Research	BIDMC
2018-	Member	Harvard Initiative for Learning and Teaching	Harvard University
2021-	Member	Supportive Birth Collaborative	BIDMC
2022-	Faculty Member	Shapiro Institute for Education and Research	BIDMC

Major Administrative Leadership Positions

Local

2007-2010	Associate Medical Director, Women's Health Care	Anna Jaques Hospital
2010	Chief, OBGYN	Anna Jaques Hospital
2010-2021	Director, OBGYN Services	Bowdoin Street Health Center
2011-2013	Associate Clerkship Site Director	BIDMC, Department of OBGYN
2011- 2018-	Clerkship Committee	HMS, Department of OBGYN Vice Chair
2012-2013	Associate Residency Program Director	BIDMC, Department of OBGYN
2013-2015	Director, Resident Ambulatory Practice	BIDMC, Department of OBGYN
2014-2019	Course Director, Preparation for Residency, "OBGYN Boot Camp"	HMS, Department of OBGYN
2015-	Clerkship Site Director	HMS, Department of OBGYN
2016-2023	Course Site Director, Transition to the Principle Clinical Experience	HMS
2017	HMS Medical Education Day*, Co-Chair*	HMS
2018-2023	Lead Faculty, Specialty Advisor Program Development	HMS
2019-2023	Course Director, Transition to the Principal Clinical Experience	HMS
2020	Lead Faculty, Advanced Clinical Content and Skills	HMS
2021-	Clinical Capstone Pre-internship Specialty Track Director	HMS, Department of OBGYN
2021	Interim Associate Director and Advisor, Cannon Society	HMS

2021-	Director for Undergraduate Medical Education	BIDMC, Department of OBGYN
2022-	Co-Director, Rabkin Medical Education Fellowship	BIDMC, Shapiro Institute for Research and Education
2022-	Course Director, Obstetrics Night Float Acting Internship Advanced Clinical Elective	BIDMC, Department of OBGYN
2023	Interim Associate Director and Advisor, Peabody Society	HMS
2024-	Course Director, BRIDGES 1 and 2	HMS
2024-	Director of Simulation	BIDMC, Department of OBGYN

National

2018-2024	Conference Co-Organizer, Clerkship Director School	APGO Annual Faculty Development Seminar

Committee Service

Local

2010	Medical Executive Committee	Anna Jaques Hospital
2010	Surgical Committee	Anna Jaques Hospital
2010	Medical Records Committee	Anna Jaques Hospital
2010-	Gynecology Leadership Committee 2012-2018, 2024-	BIDMC, Department of OBGYN Committee Chair
2010-	Mentorship Committee	BIDMC, Department of OBGYN
2010-	Residency Selection Committee	BIDMC, Department of OBGYN
2010-	Quality Assurance Committee	BIDMC, Department of OBGYN
2014-	Career and Residency Advisor Network	HMS
2014-	Clerkship Committee 2017-	HMS, Department of OBGYN Vice Chair
2014-	Clinical Competency Committee	BIDMC, OBGYN Residency Program
2015-	Joint Commission on the Status of Women	HMS
2015-2016	Faculty Hour Committee	BIDMC
2015-2019	Compassion, Caring and Empathy Committee	The Academy at HMS
2015-2020	Critical Thinking Interest Group	The Academy at HMS Co-chair
2016-2022	Strategic Planning Committee	BIDMC, Department of OBGYN
2018-	Peer Support Program Nominated member	Betsy Lehman Center BIDMC
2019-	Educational Policy & Curriculum Committee	HMS Member, Pre-clerkship Sub-Committee

2019-	Trauma-informed Care Curricular Theme Committee	HMS Founding member Member, Curriculum Assessment Sub-committee
2019-	Admissions Committee	HMS Member, Sub-committee 3
2020-2021	Faculty Hour Committee	BIDMC
2020-	Committee on Diversity, Equity, and Inclusion	BIDMC, Department of OBGYN
2021-2022	Well-being Steering Committee	HMS
2021	Working Group on Thresholds for Student Phase Progression	HMS
2022-	Honors and Awards Committee	BIDMC, Department of OBGYN Founding Member
2022	Visual Arts advisory Committee	Brigham and Women's Hospital/HMS Founding Member
2023-2026	Faculty Council	HMS

Regional

2018-	Primary-Care Research in Diagnosis Errors (PRIDE) Learning Network	Betsy Lehman Center for Patient Safety Commonwealth of Massachusetts

National

2018-	Undergraduate Medical Education Committee	APGO
2018-	Clerkship Director School	APGO *Co-Course Director*
2018-2021	Transition to Residency Director School	APGO *Co-Course Director*
2018-	Communications Sub-Committee 2022-	APGO Chair
2021	Accelerating Change in Medical Education Thematic discussion series	American Medical Association, HMS faculty representative
2021-2023	Right Resident, Right Program, Ready Day One Curriculum and Assessment Committee	APGO
2023-	Assessment Development Subcommittee	American Board of OBGYN
2024-	Program Committee	Society of Academic Specialists in General OBGYN

<u>Professional Societies</u>

1990-	American College of Obstetricians and Gynecologists 1990-1995 1995-	Member Junior Fellow Fellow
2005-	Massachusetts Medical Society	Member

2011-	Association of Professors of Gynecology and Obstetrics	Member
	2012-2018	Member, Abstract Selection Committee
	2018-2024	Undergraduate Medical Education Committee (UMEC)
	2025-	Member, Annual Meeting
		Member, Advisory Committee for Academic Scholars and Leaders
2013-	Society of Academic Specialists in General OBGYN	Member
2019	American Public Health Association	Abstract Selection Committee
2015, 2019-	Association of American Medical Colleges	Abstract Selection Committee
2020-	Boston Obstetrical Society	Member

Editorial Activities

Ad hoc Reviewer

Academic Medicine
American Journal of Psychotherapy
BMC Medical Education
Diagnosis
International Journal of Gynecology and Obstetrics
Journal of Graduate Medical Education
Maternal and Child Health Journal
MedEdPORTAL
Obstetrics and Gynecology

Other Editorial Roles

2018-2022	Co-editor	The Medical Educator
2021	Associate Editor	APGO Online Medical Student Educational Objectives (MSEO), 11th Edition
2021	Editorial Board Member	APGO Online MSEO Teaching Cases 11th Edition
2021	Editorial Board Member	APGO Online Effective Preceptor Series
2022	Editorial Board Member	APGO Online Effective Career Development Series
2022-2024	Editor	The Medical Educator
2023	Editorial Board Member	APGO Online Basic Skills Curriculum
2023	Editorial Board Member	APGO Online Inclusive Learning Environment Series

Honors and Prizes

2011	Faculty Prize, Excellence in Teaching Medical Students	APGO	Teaching

2013	Nominee, Charles McCabe Faculty Prize for Excellence in Teaching (Years III & IV)	HMS	Teaching
2014	Nominee, Charles McCabe Faculty Prize for Excellence in Teaching (Years III & IV)	HMS	Teaching
2015	Charles McCabe Faculty Prize for Excellence in Teaching (Years III & IV)	HMS	Teaching
2015	Innovation Prize for Undergraduate Medical Education Poster: "Impact of the Resident-As-Teacher Video Series in Preparing Students to be Resident Teachers"	HMS Medical Education Day	Medical Education Research
2015	First Prize Poster: "Constructing the Pelvis: Assessment of a Novel Teaching Approach to Anatomy"	CREOG/APGO Annual Meeting	Medical Education Research
2016	Innovation Prize for Undergraduate Medical Education Poster: "Faculty Perspectives of Using a Standardized Oral Exam to Assess Ob/Gyn Clerkship Students"	HMS Medical Education Day	Medical Education Research
2018	First Prize Poster: "Experiences in DOCS Clinic: Direct Observation of Clinical Skills in the OBGYN Clerkship"	CREOG/APGO Annual Meeting	Medical Education Research
2019	Nominee, Award for Culture of Excellence in Mentoring Gynecology and Obstetrics Advising Team	HMS	Mentoring
2020	Nominee, Award for Culture of Excellence in Mentoring Gynecology and Obstetrics Advising Team	HMS	Mentoring
2021	Society for Academic Specialists in General OBGYN Faculty Award	Society for Academic Specialists in General OBGYN	Teaching
2022	Nominee, A. Clifford Barger Excellence in Mentoring Award	HMS	Mentoring
2023	Best Classroom Education Research Poster, "Responding to Trauma Disclosures: A Clinical Skills Curriculum"	Shapiro Institute Center for Education and Research	Medical Education Research
2023	Best Educational Simulation Poster, "Simulated Delivery, Real Awareness: A Novel, Interprofessional Labor and Delivery Simulation for Pre-Clinical Medical Students"	Shapiro Institute Center for Education and Research	Medical Education Research
2024	Best Medical Student Education Poster, "Transition to the Principal Clinical Experience: a multipronged curricular approach to knowledge consolidation and skill development in preparation for medical school clerkships"	Shapiro Institute Center for Education and Research	Medical Education Research

Report of Funded and Unfunded Projects

Past Funded Projects

2016-2018 Simulation as a Tool for Assessment
Harvard Institute for Learning and Teaching
Co-Investigator (PI: Morgan Soffler)
The project investigates the utility of simulation as a tool for assessment in undergraduate medical education. My role was to serve as Faculty Reviewer for simulation assessments of students and to perform qualitative analysis of focus group data.

2018-2021 Reducing Diagnostic Error: A Case-based, Critical Thinking Curriculum
Controlled Risk Insurance Company/Risk Management Foundation
Principal Investigator (Total direct costs: $266,000)
This project is a multi-disciplinary, multi-institution effort to build a curriculum for learners across the medical education continuum on avoiding diagnostic error through improving critical thinking, awareness of cognitive bias, and development of metacognitive strategies to improve patient safety and clinical outcomes.

2019-2021 Using Qualitative Research Methods to Optimize the Clerkship Learning Environment: A Faculty-Student Quality Improvement Study
Dean's Innovation Award
Co-Investigator (PI: K. Meredith Atkins)
This project is intended to study utilization of student input for improvement of the clinical learning environment using qualitative methodology, including systematic analysis of oral and written narratives to design targeted interventions for improvement of the learning environment.

2019-2021 Mapping Entrustable Professional Activities in OBGYN from Undergraduate to Graduate Medical Education
Promising Young Investigator Grant, Department of OBGYN, BIDMC (2nd competitive renewal)
Principal Investigator (Total direct costs: $120,939)
Multi-institutional project to define expected entrustable professional activities in OBGYN for undergraduate medical education and map these to graduate-level OBGYN Milestones.

2019-2020 Residency Training in Trauma Informed Care: A National Assessment
Expanding the Boundaries Grant, Brigham & Women's Hospital
Co-Investigator (PI: Deborah A. Bartz)
The goals of this national survey of all U.S. and Canadian residency training programs in Ob/Gyn is to assess current learning opportunities in trauma informed care (TIC), and investigate barriers to inclusion of TIC curricula.

2022-2023 Faculty Career Specialty Advisor Curriculum and Faculty Development
Dean's Discretionary Fund, HMS
Grant Type: Educational
Principal Investigator (Total Direct Costs: $15,000)
This project has two major goals: identify and develop best practices in career advising for all specialties at HMS and study the utility of a standardized letter of recommendation.

Current Unfunded Projects

2021- Trauma-informed care
Co-Investigator
This project is developing assessment tools and a guide for assessment of trauma-informed skills in medical education. My role is in development of the assessment tool and analysis of results.

2023-	Visual Arts in Medicine Consultant Multicenter research into effect of participation in a Visual Thinking Strategies workshop series on internal medicine interns' clinical reasoning. My role is in development of the assessment tool and analysis of results.

Report of Local Teaching and Training

Teaching of Students in Courses

2010-	Practice of Medicine *POM 100* Performing the Breast and Pelvic Exam Second-Year Medical Students	HMS 3-hour session, 1 per year
2012-	Core Clerkship OBGYN *102-OB600M.5* Second and Third-Year Medical Students, 55-60 per year	BIDMC 2-hour rotations, 8 per year
2014-2020	OBGYN Bootcamp *250-OB590M.1* Fourth-Year Medical Students, 8-12 per year	HMS 24 hours over 4 weeks per year
2014-2017, 2023, 2024	HST 010: Functional Human Anatomy Female Pelvic Anatomy First-Year Harvard-MIT Division of Health Sciences and Technology Students, 25-30 per year	HMS 4 hours per year
2016-2023	Transitions to the Principle Clinical Experience Course PWY150 Second Year Medical Students, 135-140 per year	HMS 15 hours over 5 weeks per year
2018-	Professional Development Week PDW 1 and PDW2 First Year Medical Students, 15 per year	HMS 7 hours per year
2019-	Homeostasis 2: Physiology and Pathophysiology of Pregnancy First Year Medical Students, 35-37 per year	HMS 3 hours per year
2021-2024	Clinical Capstone, OBGYN (OB 501 M 1C) Direct Observation and Assessment of Entrustability, Clinical Capstone Fourth Year Medical Students, 8-12 per year	HMS 5-hour session, 8 weeks per year

Formal Teaching of Residents, Clinical Fellows, and Research Fellows (post-docs)

2011-2016	Monthly Resident Case Review OBGYN residents	BIDMC 1-hour case review per year
2012-2016	Resident as Teacher Series: Ambulatory Teaching OBGYN residents	BIDMC 1-hour lecture per year
2013-	Resident as Teacher Series: Giving Effective Feedback OBGYN residents	BIDMC 1-hour lecture per year
2013, 2020, 2021	Professionalism and Social Media OBGYN residents	BIDMC 1-hour lecture per year
2013-2015	Ambulatory OBGYN Series OBGYN residents	BIDMC 1-hour lecture every 6 weeks
2013-2018	CREOG Review Lecture series	BIDMC

	OBGYN residents	1 hour per year
2019	Noon Conference: Art in the Afternoon Internal Medicine Residents	BIDMC 1-hour workshop
2021-	Resident Professional Development: Resident as Teacher OBGYN Residents	BIDMC 1-hour workshop per year
2021	Resident Professional Development: Teaching Clinical Reasoning OBGYN Residents	BIDMC 1-hour workshop
2022	Teaching Medical Students OBGYN Fellows	BIDMC 1-hour workshop
2022	Resident Professional Development: Feedback, Procedural Skills, and the One-Minute Preceptor OBGYN Residents	BIDMC 1-hour workshop
2022-	Rabkin Medical Education Fellowship Medical Education Fellows	BIDMC 14 hours per year
2023	Resident Professional Development: Laparoscopic Skills Training Workshop OBGYN Residents	BIDMC 3 hours per year
2023	Resident Professional Development: Giving Chalk Talks Workshop OBGYN Residents	BIDMC 1 hour per year

Clinical Supervisory and Training Responsibilities

1997-1998	Ambulatory Practice Clinical Preceptor OB/GYN and Family Practice residents and medical students (avg. of 2 per week)	Penn State Geisinger Medical Center 8 hours per week
1997-1998	Labor and Delivery Clinical Preceptor OB/GYN and Family Practice residents and medical students (avg. of 3 per week)	Penn State Geisinger Medical Center 8 hours per week
2010-2020	Ambulatory OBGYN Clinical Preceptor OBGYN Residents (average of 1 per week)	Bowdoin Street Health Center 3 hours per week
2010-	Supervisor of OBGYN Residents in Labor on Delivery, Operating Room (avg. of 4 per week)	BIDMC 18 hours per week
2010-2021	OBGYN Core Clerkship Clinical Preceptor 2nd year medical students (avg. of 10 per year)	BIDMC 4 hours per week
2010-	Gynecology Inpatient Service Clinical Supervisor OBGYN Residents, 4 per week	BIDMC 6 weeks per year

2012-2020	Women's' Community Health Elective Clinical Preceptor 4th year medical students (avg. of 3 per year)	Bowdoin Street Health Center 3 hours per month
2015, 2018, 2019	Clinical supervisor: MOMS project 1st year medical students (avg. of 6 per year)	BIDMC 1 hour per month
2016-	Specialty Career Advising 3rd- and 4th-year medical students (8-12 per year)	HMS 3 hours per month

Formally Mentored Harvard Students

2017-2018	Iman Berrahou, HMS Class of 2018 Provided career mentorship and supervision of national presentation, "Strategies to Improve the Cervical Cancer Screening Experience for LGBTQ Patients" CREOG/APGO Annual Meeting*; Accomplishment*: successful residency match; Dr. Berrahou's video presentation was adopted by the OBGYN Clerkship Committee at HMS as part of the core clerkship curriculum.
2017-2018	Gillian Horwitz, HMS Class of 2018 Provided career mentorship and supervision of curriculum development. Dr. Horowitz contributed to the development of a Fourth-year elective in Women's Health and Medical Education, HMS and had successful residency match.
2017-2018	Francesca Barrett, HMS Class of 2018 Provided career mentorship and supervision of expansion of the student-run Crimson Care Collaborative to include women's health. Dr. Barrett had a successful residency match.
2020 -2021	Isabelle Wijangco, HMS Class of 2021 Served as their Scholars in Medicine Project, Career and Residency Application Advisor. Dr. Wijangco had a successful residency match.
2020 -2022	Juliet Musabeyezu, HMS Class of 2022 Served as their Scholars in Medicine Project, Career and Residency Application Advisor. Dr. Musabeyezu had a successful residency match.
2021-2023	Rachel Stoddard, HMS Class of 2023 Served as their Scholars in Medicine Project, Career and Residency Application Advisor. Ms. Stoddard developed, implemented, and evaluated an educational simulation for pre-clerkship students, presented at NEGEA conference and AAMC Learn Serve Lead 2023; manuscript in development. In addition, she has a successful residency match.
2021-2024	Salvatore Daddario, MS, HMS Class of 2024 Served as the principal investigator for an educational QI project. Mr. Daddario developed, implemented, and evaluated an educational simulation for pre-clerkship students, presented at AAMC Learn Serve Lead 2023; manuscript in development.
2021-2024	Hailey Winstead, HMS Class of 2024 Served as principal investigator for an educational QI project. Ms. Winstead developed, implemented, and evaluated an educational simulation for pre-clerkship students, presented at AAMC Learn Serve Lead 2023; manuscript in development.
2023-2024	Alexandra Krauss, MD. Master's in Education Program, HMS Served as Chair of Thesis Committee. Thesis: Mixed Signals: Navigating the Obstetrics and Gynecology Signaling Initiative

2024 Matthew Parsons, HMS Class of 2024
Committee Member, Honors in a Special Field Program. Thesis: Medical Students as Surgical Educators: A Near Peer Teaching Program for the Core Surgery Clerkship

Other Mentored Trainees and Faculty

2011-2014 Kristin Hung, MD, Instructor, Urogynecology and Reconstructive Pelvic Surgery, Massachusetts General Hospital
Career stage: Resident*; Mentoring role:* Career mentorship, formal mentor*; Accomplishment*: successful fellowship matching

2011-2013 Annie Liu, MD, Staff Physician, Gynecologic Oncology, Kaiser Permanente, Clackamas, OR
Career stage: Resident*; Mentoring role:* Career mentorship*; Accomplishment*: successful fellowship matching

2013-2015 Margaret Chory, MD, Clinical Assistant Professor, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh
Career stage: Resident*; Mentoring role:* Career mentorship, formal mentor*; Accomplishment*: entered academic practice, University of Pittsburgh

2014-2015 Nancy Ringel, MD, MS, Assistant Professor, Department of Obstetrics, Gynecology and Reproductive Sciences, Yale School of Medicine
Career stage: student*; Mentoring role:* Career mentorship, advisor for residency application; *Accomplishment*: successful residency match

2014-2015 Yetunde Ibrahim, MD, private practice, Utah Fertility Center
Career stage: Junior faculty*; Mentoring role:* Career mentorship, formal mentor*; Accomplishment*: Entered faculty position as Instructor of OBGYN at BIDMC.

2014-2015 Erin Brooks, MD, Staff Physician in OBGYN, Hartford Hospital, Hartford, CT
Career stage: Resident*; Mentoring role:* Career mentorship, formal mentor*; Accomplishment*: obtained faculty position in OBGYN at BIDMC

2014-2016 Ebonie Woolcock, MD, MPH, Assistant Professor, Clerkship Director for OBGYN, and Assistant Dean for Diversity and Inclusion, Boston University School of Medicine
Career stage: Junior Faculty; *Mentoring role:* Career mentorship, formal mentor in the Kraft Family Fellowship in Community Health Leadership, Bowdoin Street Health Center; *Accomplishment*: During the fellowship, Dr. Woolcock designed and implemented a new curriculum on financial literacy, which was adopted into the national CenteringPregnancy prenatal care course.

2015-2016 Sarrah Shahawy, MD, Instructor, Obstetrics, Gynecology and Reproductive Biology, BIDMC
Career stage: Medical student; *Mentoring role:* Career mentorship, advisor for residency application; *Accomplishment*: successful residency match. Dr. Shahawy is an Instructor of Obstetrics, Gynecology and Reproductive Biology at HMS and a member of the Global and Community Health Division of the Department of OBGYN at BIDMC.

2015-2019 Nisha Verma, MD, Darney-Landy Fellow, American College of Obstetricians and Gynecologists and Assistant Professor, Department of Gynecology and Obstetrics, Emory University
Career stage: Resident*; Mentoring role:* supervision of educational research project*, Accomplishment*: Implementation of "Intimate Partner Violence Workshop" into OBGYN Clerkship Curriculum. Presented at the Association of Professors of Gynecology and Obstetrics Faculty Development Seminar, Palm Springs, CA January 2017. Published "Intimate Partner Violence in Pregnancy". Scientific American OBGYN Online. 2018

2015-2019 Yamicia Connor, MD, PhD, MPH, CEO and Founder of Diosa Ara, Founder of Race to Better Health
Career stage: student, resident; *Mentoring role:* Career mentorship, supervision of educational project: Online OBGYN Medical Education Resident Review, BIDMC; *Accomplishment:* Curriculum submitted for publication

2016-2018 Tariro Mupombwa, MD, Assistant Professor, OBGYN, Clinician Educator, Warren Alpert Medical School of Brown University
Career stage: Resident*; Mentoring role:* supervision of quality improvement project*; Accomplishment*: Quality improvement project, "PACU Length of Stay after Outpatient Hysterectomy". Poster presentation Silverman Institute and Grand Rounds.

2016-2018 Mary Carson, MD
Career stage: Faculty*; Mentoring role:* mentored Dr. Carson's re-entry into clinical medicine. *Accomplishment*: Dr. Carson successfully resumed a clinical medicine career as Instructor of Obstetrics, Gynecology and Reproductive Biology at HMS and a member of the Academic Generalist OBGYN Division of the Department of OBGYN at BIDMC. Dr. Carson is now retired.

2018-2022 Lydia Flier, MD, Instructor, Department of Medicine, Mount Auburn Hospital
Career stage: Junior faculty*; Mentoring role:* supervision of educational project: Professionalism curriculum*; Accomplishment:* Curriculum published in MedEdPORTAL

2018 Monica Mendiola, MD, OBGYN Medical Director, East Boston Neighborhood Health Center
Career stage: Junior faculty*; Mentoring role:* Formal Mentorship through APGO Faculty Development Seminar Presenters "Power Up" mentoring program for first-time presenters. *Accomplishment*: successful application for subsequent presentations

2018-2019 Robert Weatherford, MD, Instructor in Obstetrics, Gynecology and Reproductive Biology, Massachusetts General Hospital
Career stage: student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match

2019-2020 Samantha Truong, MD, Department of OBGYN, Boston Medical Center and Assistant Professor at Boston University School of Medicine
Career stage: student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match

2019-2020 Allison Merz, MD, Fellow, University of California San Francisco
Career stage: student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match

2019-2021 David Toffey, MD, Staff Physician, Department of OBGYN, Pennsylvania Hospital
Career stage: resident*; Mentoring role: F*ormal career mentor through BIDMC OBGYN residency program.

2020 -2021 Natalie Posever, MD, Resident, Department of OBGYN, BIDMC
Career stage: student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match

2020 -2021 Zoe Kiefer MD, MPH, Clinical Faculty, Tufts Medical Center, Medford MA
Career stage: Junior faculty; *Mentoring role*: Formal career mentor through BIDMC OBGYN department faculty mentorship program.

2021 -2022 Mugdha Mokashi, MD, Resident, Department of OBGYN, Northwestern Medicine
Career stage: student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match

2021 -2022	Sonya Bharadwa, MD, Resident, Department of OBGYN, Northwestern Medicine *Career stage:* student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match
2021-2023	Sophia Yin, MD, Resident, Department of OBGYN, Brigham and Women's Hospital and Massachusetts General Hospital *Career stage:* student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match
2021-2023	Leah Schwartz, MD, Resident, Department of OBGYN Brigham and Women's Hospital and Massachusetts General Hospital *Career stage:* student; *Mentoring role:* Career mentorship, Career and Residency Application Advisor; *Accomplishment*: successful residency match
2021-	Tracy Byrne, MD, Instructor in Obstetrics, Gynecology and Reproductive Biology, BIDMC *Career stage:* new faculty*; Mentoring role:* Career mentorship, develop skills and knowledge to assume educational leadership role*; Accomplishment*: Dr. Byrne has assumed educational leadership roles as director of the Labor and Delivery rotation for students and residents and assistant Clerkship Site Director.
2022-2023	Ashley Comfort, MD, Medical Director, Oula Health, Inc. *Career stage*: Junior faculty*; Mentoring role:* Career mentorship, develop skills and knowledge to assume educational leadership role*; Accomplishment*: Dr. Comfort has assumed educational roles in providing faculty development.
2025	Marla Scott Kelly, MD, MPH Assistant Clinical Professor of Obstetrics and Gynecology, Beauregard Health System, DeRidder, LA *Career stage*: faculty*; Mentoring role:* Career mentorship, develop skills and knowledge to assume educational leadership role*; Accomplishment*: mentor relationship in progress
2025	Lindsey Borgia, MD: Assistant Professor of Obstetrics and Gynecology, United States Uniformed Health Services, Bethesda, MD *Career stage* faculty*; Mentoring role:* Career mentorship, develop skills and knowledge to assume educational leadership role*; Accomplishment*: mentor relationship in progress
2025	Kimberly Pilkinton, MD MPH, Associate Professor of Obstetrics and Gynecology, University of Houston Tilman J. Fertitta Family College of Medicine Houston, TX *Career stage*: faculty; *Mentoring role:* Career mentorship, develop skills and knowledge to assume educational leadership role*; Accomplishment*: mentor relationship in progress

Formal Teaching of Peers (e.g., CME and other continuing education courses)

No presentations below were sponsored by outside entities.

2011-	Obstetrical Simulation: Evaluation and Management of Obstetrical Emergencies	Four 3-hour sessions per year Department of OBGYN, BIDMC
2016	Direct Observation of Students for Assessment Faculty Development Seminar	90-minute workshop Department OBGYN, BIDMC
2016	Teaching and Assessing Critical Thinking Skills	90-minute workshop BIDMC Academy of Medical Educators

2018	Team Teaching in Transition to the Principle Clinical Experience Faculty Development Seminar	Four 1-hour workshops HMS
2024	The Perils of not writing what you mean: How to write a letter of recommendation	1- hour presentation BIDMC Academy of Medical Educators

Local Invited Presentations

No presentations below were sponsored by outside entities.

2013	Education Works in Progress/Lunchtime Series BIDMC Academy (formerly the Academy of Medical Educators at BIDMC)
2014	Improving Communication Through the Development of a Uro-Gyn Clinical Pathway/Presentation Silverman Institute for Health Care Quality and Safety Symposium, BIDMC.
2015	Surgical Teaching and Learning/Grand Rounds Department of OBGYN, BIDMC
2016	Decreasing the PACU Length of Stay for Ambulatory Gynecology Patients/Presentation Silverman Institute for Health Care Quality and Safety Symposium, BIDMC
2016	Introduction of Outpatient Hysterectomy Clinical Care Pathway/Presentation Silverman Institute for Health Care Quality and Safety Symposium, BIDMC.
2016	Are You Game? Gamification in Medical Education/Lunchtime Seminar BIDMC Academy
2016	Thinking About Our Thinking: An Exploration of Cognitive Bias and Clinical Reasoning Pitfalls/Seminar The Academy at Harvard Medical School (presented twice)
2017	Teaching and Assessing Critical Thinking Skills/Grand Rounds Department of OBGYN, BIDMC
2017	Implementation of a New Lab Order Interface for the OBGYN Department/Presentation Silverman Institute for Health Care Quality and Safety Symposium, BIDMC.
2018	Critical Thinking, Metacognition and Cognitive Biases in the Prevention of Medical Error/Grand Rounds Department of OBGYN, BIDMC
2018	Art in the Afternoon: The Intersection of Visual Arts, Medicine, Teaching and Wellness/Workshop BIDMC Academy
2018	Quality Assurance and Quality Improvement Processes: Forming Committees to Improve Quality/ invited presentation Harvard Medical Faculty Physician Leadership Program for OBGYN Health Systems Innovation and Excellence Boston, MA
2019	Gynecology and Obstetrics Advising Team: GO, GOAT! /Faculty Development Seminar in Advising HMS

2020 Trauma Informed Care in Medical Education: Trauma-informed Curriculum Development/Medical Education Grand Rounds
The Academy at HMS

2020 Striving for Our Personal and Professional Best: Virtual Mentoring for Professional Growth/Grand Rounds
Department of OBGYN, BIDMC

2020 Trauma Informed Care in Medical Education: Applications to Surgical Training/Grand Rounds
Department of Surgery, Cambridge Health Alliance

2020 Trauma Informed Care in Medical Education: Applications in OBGYN/Grand Rounds
Department of OBGYN, BIDMC

2021 Combating Inequality in Women's Healthcare: Opportunities to Increase Access and Education/Panel Moderator
30th Annual Dynamic Women in Business Conference: Inspire to Rebuild. Harvard Business School

2021 Feedback Basics for Busy Clinicians/ Grand Rounds
Department of Otolaryngology, BIDMC

2021 How to Peer Review a Manuscript/Workshop
Department of OBGYN Peer Mentoring Group, BIDMC

2022 Academic Resolutions/ Workshop
BIDMC Academy of Educators

2023 Surgical Teaching that Shines: Techniques for Teaching in the OR/Grand Rounds
Department of OBGYN, BIDMC

2023 Thorndike Lecture, Clinical Reasoning Week: Thinking like a doctor: Strategies for enhancing clinical reasoning in medical education/ Workshop
Department of Medicine, BIDMC

2023 Undergraduate Medical Education at Harvard Medical School: An Overview
BIDMC Academy of Educators

2023 Clinical Teaching Tips/ Workshop
BIDMC Academy of Educators

2024 Academic Resolutions/ Workshop
BIDMC Academy of Educators

2024 Teaching on the Fly: Giving Effective Chalk Talks/Grand Rounds
Department of OBGYN, BIDMC

2024 Advances in Trauma-informed Medical Education: Essential Competencies and Interprofessional Education
Brigham and Women's Hospital

2024 The Clinical Learning Environment/ Grand Rounds
Department of Obstetrics and Gynecology

2025 New Year, New Academic Resolutions
BIDMC Academy of Educators

Report of Regional, National and International Invited Teaching and Presentations

No presentations below were sponsored by outside entities.

Regional

2010	OBGYN Quality Review Department of OBGYN, Anna Jaques Hospital, Newburyport, MA
2016	Surgical Teaching and Learning/Grand Rounds Department of OBGYN, Lahey Clinic, Burlington, MA
2021	Endometriosis/Lecture Betsy Lehman Center for Patient Safety, Commonwealth of Massachusetts, Boston, MA
2021	Teaching about our Thinking: Cognitive Bias, Critical Thinking and Prevention of Diagnostic Error/Grand Rounds Department of OBGYN, University of Connecticut UConn Health Center, Farmington, CT Presented virtually
2021	Trauma Informed Care in Medical Education: Applications in Emergency Medicine/Grand Rounds Department of Emergency Medicine, University of Vermont, Burlington VT Presented virtually
2022	Challenging Learners: Helping the struggling student/Medical Education Grand Rounds The Teaching Academy, Larner College of Medicine, University of Vermont, Burlington VT Presented virtually
2023	Prenatal Diagnosis: Thalassemia/Lecture Betsy Lehman Center for Patient Safety of the Commonwealth of Massachusetts Boston, MA
2024	Mentoring for Residents/ Workshop American College of Obstetricians and Gynecologists, District I, V, and VI Annual Meeting Boston, MA

National

2014	Changing the Culture: Tackling the Teaching of Students on Labor and Delivery/ invited presentation APGO Faculty Development Seminar West Palm Beach, FL
2014, 2015	Association of Professors of Gynecology and Obstetrics, Council on Resident Education in OBGYN (APGO/CREOG) Poster Judge and Oral Presentation Moderator, Annual Meetings Atlanta, GA and New Orleans, LA
2015	A Night at the Museum: Using Visual Arts to Foster Humanism in Medicine/ invited presentation APGO Faculty Development Seminar Palm Springs, CA
2015	Optimizing Your Resources: Multi-Institution Collaborations for Milestone 1 Implementation/ invited presentation APGO Faculty Development Seminar Palm Springs, CA

2015 Writing for Wikipedia: Empowering Learners as Educators in the Digital Age/ invited presentation
CREOG APGO Annual meeting
San Antonio, TX

2016 Constructive Dissection of the Pelvis: A Simulation to Improve Clinical Knowledge of Gynecologic Anatomy/ invited presentation
APGO Faculty Development Seminar
Bonita Springs, FL

2016 The Residency Application Process: Burdens and Consequences/ invited on-line presentation
New England Journal of Medicine Group Open Forum, @NEJM Ask the Authors and Experts

2016 It's Not So Easy: Teaching and Learning in the Operating Room/ invited presentation
CREOG APGO Annual meeting
New Orleans, LA

2016 Tout Bagay Anfom? Is Everything Okay? Working with the Challenging Learner/ invited presentation
CREOG APGO Annual meeting
New Orleans, LA

2016 Perceived Stress among OBGYN trainees before and after wellness activity/ Plenary Presentation
The Art of Examination: Art Museums with Medical Schools Partnerships, Museum of Modern Art
New York, NY

2016 The Future of the Step 2 Clinical Skills Exam/ invited on-line presentation
NEJM Group Open Forum, @NEJM Ask the Authors and Experts

2017 Thinking about Your Thinking: An Exploration of Cognitive Biases and Clinical Reasoning Pitfalls/ invited presentation
APGO Faculty Development Seminar
Palm Springs, CA

2017 Charting the Course: Designing a Fourth-Year OB-GYN Curriculum Using Entrustable Professional Activities/ invited presentation
APGO Faculty Development Seminar
Palm Springs, CA

2017 Behind Closed Doors: Teaching Learners to Address Intimate Partner Violence/ invited presentation.
APGO Faculty Development Seminar
Palm Springs, CA

2017 Thinking about our thinking: An exploration of cognitive biases and strategies for teaching critical thinking/ invited 2-day Workshop.
Teaching Academy of the Consortium of West Region Colleges of Veterinary Medicine
Fort Collins, CO

2018 Cleansing the Curriculum: The EPA Energy Drink/ invited presentation
APGO Faculty Development Seminar
Manalapan, FL

2018 A New Ship Setting Sail: Putting Ob-Gyn Specific Entrustable Professional Activities into Action/ invited presentation
CREOG/APGO Annual Meeting
National Harbor, MD

2018 Full Steam Ahead: Putting Student Well-Being at the Helm/ Plenary Session
Medical Education Clerkship Coordinators of OBGYN Annual Meeting
National Harbor, MD

2018 Strategies to Improve Cervical Cancer Screening for LGBTQ Patients: A Film-based Curriculum/ invited presentation
CREOG/APGO Annual Meeting
National Harbor, MD

2018 Building a Better Boat: Development of Clinical Care Pathways for Resident Quality Improvement Projects/ invited presentation
CREOG/APGO Annual Meeting
National Harbor, MD

2018 Post-partum Hemorrhage/ invited presentation
International Humanitarian Surgery: American College of Surgeons Annual Clinical Congress
Boston, MA

2019 What Were They Thinking? Using Critical Thinking and Cognitive Bias Awareness to Improve Patient Care/ invited presentation
APGO Faculty Development Seminar
Maui, HI

2019 Finding Tomorrow's Sunshine: Developing the Next Generation of Medical Educators/ invited presentation
APGO Faculty Development Seminar
Maui, HI

2019 Transition to Residency Course: the HMS Experience/ invited presentation
National Residency Match Program: Transition to Residency Conference
Chicago, IL

2020 Cognitive Biases in Clinical Medicine/ invited presentation
Innovations Festival/APGO Faculty Development Seminar
Bonita Springs, FL

2020 Bridging the Gap: Development of OBGYN-specific entrustable professional activities in preparation for residency/ invited presentation
Association of American Medical Colleges Learn Serve Lead conference
Virtual

2020 Webinar - Leadership & Learning During Twin Pandemics: Get GYN-spired
APGO Faculty Development
Virtual

2021 Self-Defense for Sexual Harassment: Empowering Learners and Cultivating Culture Change/ invited presentation
APGO Faculty Development Seminar
Virtual

2021 Beth Israel Deaconess Medical Center Labor & Delivery Overview/ invited presentation
Innovation Festival, CREOG /APGO Annual Meeting
Virtual

2021 Equitable Advising in the Fourth Year: Guiding Students and Faculty in Our New Reality/ invited presentation
CREOG /APGO Annual Meeting
Virtual

2021 Clerkship 101: Roles and Logistics of Running a Clinical Course/ invited presentation, live webinar
Alliance for Clinical Education (ACE) Clinical Faculty Development Series 101
Virtual

2022 Inch by Inch, Row by Row, I'm Going to Help this Interprofessional Team Grow/ invited presentation
APGO Faculty Development Seminar
Virtual

2022 Entrust or Bust: Eliminating Bias in Assessments on the Road to Clinical Competency/ invited presentation
APGO Faculty Development Seminar
Virtual

2023 Writing effective narratives/ invited presentation
APGO Faculty Development Seminar
Scottsdale, AZ

2023 Diverse by design: Making room for all on the road to success/ invited presentation
CREOG and APGO Annual Meeting
National Harbor, MD

2023 Bridge over Troubled Waters: Redesigning Student Abortion Education/ invited presentation
CREOG and APGO Annual Meeting
National Harbor, MD

2023 Transition to the Principal Clinical Experience: A **simulation-based** curriculum for increasing **situational awareness** in pre-clerkship medical students/ invited presentation
American Medical Association's biennial ChangeMedEd Conference
Chicago, IL

2024 Practical Life Hacks: Tips and Tricks to Shine your Med Ed Scholarship Sparkle/ invited presentation
APGO Faculty Development Seminar
Amelia Island, FL

2024 Design and Shine: Giving Effective Chalk Talks on L&D/ invited presentation
APGO Faculty Development Seminar
Scottsdale, AZ

2024 Introducing Planetary Health into your Curricula/ invited presentation
CREOG/APGO Annual Meeting
San Antonio, TX

2024	Transforming Paradigms of Professionalism: Grounding Professional Behaviors in Equity and Advocacy / invited presentation CREOG/APGO Annual Meeting San Antonio, TX
2024	Trauma Informed Medical Education/ invited presentation Association of American Medical Colleges Learn Serve Lead conference Atlanta, GA

International

2017	Teaching and Assessing Critical Thinking Skills. Training for Teachers Program, Harvard Medical School Global and Continuing Education Online session for medical faculty in Andra Pradesh, India
2017	Teaching and Assessing Critical Thinking Skills. Medical Education Academic Specialty Track, Global Pediatrics Leadership Program Harvard Medical School Global and Continuing Education Online session for 60 pediatricians in Shanghai, China.
2017	"Minimally Invasive Surgical Techniques: Hysteroscopy and Laparoscopy". One week visiting professorship, Hospital Agostinho Neto, Praia, Santiago, Cape Verde, and University of Cape Verde
2018	"Operative Hysteroscopy Surgical Techniques"/ One week visiting professorship Hospital Agostinho Neto, Praia, Santiago, Cape Verde, and University of Cape Verde
2021	Trauma Informed Care in OBGYN/ Grand Rounds Department of OBGYN, University of Botswana Virtual
2022	Responding to Trauma Disclosures in Obstetrics ang Gynecology/Grand Rounds Department of OBGYN, University of Botswana Virtual

Report of Clinical Activities and Innovations

Current Licensure and Certification

2011	Basic Life Support (BLS), biannual renewal (original 1989)
2014	Fundamentals of Laparoscopy Surgery Certification
2021	American Board of Obstetricians and Gynecologists, renewal (original 1995)
2022	Massachusetts Medical License

Practice Activities

2010-2020	Staff Obstetrician and Gynecologist	Bowdoin Street Health Center, Dorchester, MA	20 hours per week
2010-2020	Staff Obstetrician and Gynecologist	BIDMC	12 hours per week
2020-	Staff Obstetrician and Gynecologist- Laborist	BIDMC	20 hours per week

Clinical Innovations

Centering Pregnancy Bowdoin Street Health Center 2012-2018	I implemented the CenteringPregnancy model of prenatal care, including a modification to include financial literacy developed by my mentee, Dr. Ebony Woolcock. This served approximately 85 obstetric patients per year, all of whom were classified as high-risk pregnancies. The financial literacy module developed here was adopted by the national CenteringPregnancy program.
Clinical Care Pathways 2015-2016	As physician chair of the Gynecology Leadership Committee, I led the implementation of a multi-disciplinary clinical care pathways for common gynecologic procedures. The development and implementation process of these projects were presented at the Silverman Institute for Health Care Quality and Safety Symposium and at the CREOG/APGO Annual Meeting as poster presentations: o Urogynecology outpatient procedures (2015) o Outpatient hysterectomy for benign gynecology (2016)
Physician Order Entry in Online Medical Record 2017	As physician chair of the Gynecology Leadership Committee, I led a multidisciplinary team in the design and implementation of new order sets for ambulatory surgery and clinical OBGYN practices, which streamlined, simplified and standardized ordering practices in the OBGYN department. This project was presented at the Silverman Institute for Health Care Quality and Safety Symposium.
Doula Program 2020-2021	Working with community representatives, I organized a team of health professionals and doulas to design a language concordant doula support program for pregnant and birthing people at Bowdoin Street Health Center.

Report of Teaching and Education Innovations

Hand-off Simulation for BIDMC OBGYN Clerkship 2012	I developed a simulation to teach patient hand-off skills to students in the clerkship and post-clerkship. This curriculum was used in the fourth-year Boot Camp elective for HMS students entering OBGYN residency and is currently a component of the Clinical Capstone course. The curriculum was published on MedEdPORTAL, with over 1300 views and 299 downloads of the curriculum.
Medical Writing for Wikipedia - HMS OBGYN Boot Camp 2013-2018	I developed a curriculum to instruct fourth year medical students in on-line editing of Wikipedia entries in OBGYN and women's health. Impact: views for topics edited in 30 days following student participation increased to over 100,000 from 18,000 year over year.
Gynecology and Obstetrics Advising Team 2014-	I am a founding member of the advising team for medical students applying into OBGYN at HMS, the first specialty advising team at HMS. In response to student concerns regarding the quality and consistency of career advising we designed a team-based approach in which every student applying in OBGYN is assigned a faculty specialty advisor to guide the student through the application to residency process, with a three-pronged curriculum and regular mentoring sessions. Since implementation, we have seen a steady rise in the number of applicants from HMS into OBGYN (average 5-6 per year to average 10-12 per year).

Night at the Museum: Wellness, Resiliency, and Visual Arts
2015-2019

I developed a 2-hour workshop in conjunction with the Museum of Fine Arts, Boston to improve wellness and resiliency among residents in the OBGYN Department. Outcomes were reported at the national CREOG/APGO annual meeting in 2016. This curriculum was adapted for use with multiple local residency programs across the HMS affiliated hospitals and was a component of APGO's Clerkship Director School. The program served as a model for a current multi-center randomized study of the efficacy of Visual Thinking Strategies in improving clinical reasoning among internal medicine residents.

HMS OBGYN Clerkship Rounds: Student as Teacher
2016

In response to medical student requests for teaching opportunities, I developed and implemented a clerkship session designed to improve peer-to-peer teaching skills in medical students. The session has become a standard component of the OBGYN clerkship syllabus.

HMS OBGYN Clerkship: Direct Observation of Clinical Skills
2016-

Direct Observation of Clinical Skills is a program to provide feedback using competency-based work-place assessment tools to students on clinical skills of history taking, physical exam and patient counseling in real time, using completely observed patient encounters with real patients. This session is consistently rated as the highest value clinical learning experience on the OBGYN clerkship. The project was the subject of an invited presentation at the CREOG/APGO Annual meeting in 2018.

Professionalism for Medical Students for Transition to the Principle Clinical Experience
2017-2020

Curriculum developed to teach HMS students entering the clinical clerkship year topics of professionalism. The curriculum consists of a flipped-classroom video, a simulation session, and group and individual feedback for medical students. This curriculum was published in MedEdPORTAL in December 2023, and has over 400 views with 83 downloads of the curriculum.

Developing Situational Awareness in the Operating Room for Transition to the Principle Clinical Experience
2018-2020, 2022

Curriculum developed to orient HMS students entering the clinical clerkship year to the operating room environment. The curriculum consists of a flipped-classroom video, a simulation session, and group and individual feedback for medical students. Curricular evaluation published in the Journal of Surgical Education in 2023, ranking in the 82nd percentile for captures (Scopus data). The simulation curriculum is submitted for publication in MedEdPORTAL.

A Trauma-informed Approach to Common Procedures for Transition to the Principle Clinical Experience
2019-2020

Video-based curriculum to orient HMS students entering the clinical clerkship year to performing common surgery and emergency department procedures from a trauma-informed perspective. The curriculum consists of a flipped-classroom video, a simulation session, and group and individual feedback for medical students.

Medical Education Quick Tips
2019-

I introduced a quarterly series of five-minute faculty development tips for OBGYN department on medical education strategies, clinical teaching, and updates on learning environment. This is a component of the department's faculty development strategy.

Transition to the PCE curriculum
2020-2022

Due to the COVID-19 pandemic, I co-led a team of over 20 faculty in redesigning the Transition to the PCE course for online, virtual, and asynchronous presentations, including faculty development for on-line interactive teaching. I took primary responsibility for the organization and logistics of the first in-person pre-clerkship teaching sessions held during the pandemic, ensuring the safety of over 150 students and faculty.

Virtual case conference curriculum for Transition to the Principle Clinical Experience
2020

In response to the urgent need to convert all clinical experiences to virtual learning during the COVID-19 pandemic, I designed online content for a virtual case conference for 2 cases, including faculty teaching guide, assessment, and feedback guide. The curriculum used both asynchronous and live online teaching to cover common topics seen clinically in the OBGYN clerkship, preparing students for their eventual return to clinical duties. This curriculum was used to teach over 180 HMS students between April and October 2020.

Interprofessional Education Podcast for Transitions to the Principle Clinical Experience
2020

I led a team of interprofessional educators to design a podcast and online interactive workshop for 135 second year HMS students to promote interprofessional collaboration, in response to limitations on in-person interprofessional education due to the COVID-19 pandemic. The podcast recording was subsequently incorporated into the curriculum for this course. The project was published in MedEdPORTAL, with over 750 views and 95 downloads of the curriculum.

Advanced Clinical Content and Skills
2020

I led a team of HMS medical educators to develop a 3-week long curriculum to augment the clinical skills and meet the unique needs of second year HMS medical students whose pre-clinical classwork was interrupted in March 2020 by COVID 19 restrictions. The curriculum included basic and advanced clinical diagnostic skills, clinical reasoning, and a focus on the hypothesis-driven physical exam. Because of its success, we incorporated the curriculum into the Transition to the PCE course, which has now been completed by

Medical Education Think Tank for Department of OBGYN, BIDMC
2020-

I organized and implemented a twice monthly Medical Education Think Tank (METT), a supportive writing group where faculty and trainees can meet to design, implement, write, and publish medical education projects. Members of the Research Division provide guidance and statistical support for big and small projects, including curriculum design, simulation, assessment, and program evaluation.

"Beth Israel Deaconess Medical Center Labor and Delivery Overview."
2021

Video presentation made to orient students, trainees, and new staff to the labor and delivery work environment during the COVID-19 pandemic. This was presented at the Innovation Festival at the CREOG/APGO annual meeting in March 2021, held virtually due to COVID-19 pandemic.

Developing Situational Awareness in the Labor Room for Transition to the Principle Clinical Experience
2022

Working with a group of medical students, I developed a simulation curriculum to orient medical students entering the clinical clerkship year to the labor floor as a clinical learning environment. The curriculum consists of a flipped-classroom video, a simulation session, and faculty guide.

Responding to Trauma Disclosures: an interprofessional approach for Transition to the Principle Clinical Experience
2022

Interprofessional curriculum to prepare medical students entering the clinical clerkship year for responding to disclosures of trauma, violence, and other common disclosures with a trauma-informed perspective. In this project I mentored a student in the design and implementation of the curriculum, which consists of a flipped-classroom video, a case-based simulation, and a faculty guide. This was the topic of a poster presentation at the Association of American Medical Colleges' 2023 meeting, and the simulation is in preparation for publication in MedEdPORTAL.

BRIDGES 1 and 2
2023-

I co-lead the design and implementation of a new core pre-clerkship course at HMS The goal is to implement a comprehensive, multi-modal course which will prepare Pathways students for the Principal Clinical Experience (PCE). The BRIDGES I/II Course will address the following needs of our students:

- Advanced physical exam techniques
- Hypothesis-driven physical exam relevant to clinical setting
- Oral and written presentation skills, using experiential learning both in clinical and simulated settings
- Introduction to unique clinical environments (e.g., operating room, pediatrics, delivery room, etc.)
- Clinical reasoning
- Professionalism

The metrics used to measure success will primarily be the key performance indicators of student performance on Observed Structured Clinical Exams and student performance on Entrustable Professional Activities.

Report of Education of Patients and Service to the Community

No activities below were sponsored by outside entities.

Activities

1993-1997	Women's Daytime Drop-In Shelter, Berkeley, CA Shelter volunteer Working with homeless women and children providing meals and medical care.
2002-2005	Our Whole Lives Instructor, Unitarian Society of Santa Barbara Santa Barbara, CA Reproductive health class instructor for children and youth in a faith community.
2005-2010	Community Health Fairs YWCA, Newburyport, MA / Lecturer Presented health education lectures for senior women and low-income women and families.
2011-2017	Reach Out and Read (ROAR), Bowdoin Street Health Center, Boston, MA / supervisor Literacy program for children. Worked with high school students to design and implement a literacy program for inner city preschool and school-age children, including supervision of volunteers and implementing a new program for distributing books to low-income children and families.

2015-2017	The College Corner, Bowdoin Street Health Center, Boston, MA / founder & supervisor Outreach program for middle school children to increase awareness of higher-education opportunities. Work with high-school students to provide college prep resources to low-income middle-school students.
2021, 2024	Personal statement reviewer for the Empower Symposium on Underrepresented Voices in Medicine, HMS chapter of the Student National Medical Association
2021-	Visual Arts Advisory Committee, founding member. Brigham and Women's' Hospital/HMS

Educational Material for Patients and the Lay Community

No educational materials below were sponsored by outside entities.

Books, articles, and presentations in other media

2014	Guide to Urogynecology Surgery	Co-author	Clinical pathway description for patients and families of common urogynecologic procedures.

Report of Scholarship

ORCID ID: 0000-0002-0739-0174

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. **Royce CS**, Atkins KM, Mendiola M, Ricciotti H. Teaching patient handoffs to medical students in OBGYN: simulation curriculum and assessment tool. *MedEdPORTAL*. 2016;12:10479.
2. **Royce CS,** Modest AM, Vicari LR, Atkins, KM. The Effect of a Teaching Attending on Medical Students' Labor and Delivery Experience. *J Gynec Obstet* 2017; 1:022.
3. Johnson N., Khachadoorian-Elia H., **Royce CS,** York-Best C., Atkins K., Chen X., Pelletier A. Faculty perspectives on the use of standardized versus non-standardized oral examinations to assess medical students. *Int J Med Educ.* 2018; 9, 255-261.
4. Morgan HK, Graziano SC, Craig LB, Everett EN, Forstein DA, Hampton BS, Hopkins L, McKenzie ML, Pradhan A, **Royce CS**, Madani-Sims S, Morosky CM. A National Survey of Profiles of Clerkship Directors in OBGYN. *Obstet Gynecol*. 2019 Oct;134(4):869-873.
5. Johnson NR, Pelletier A, **Royce CS**, Goldfarb I, Singh T, Lau TC, Bartz DD. Feedback Focused: A Learner- and Teacher-Centered Curriculum to Improve the Feedback Exchange in the OBGYN Clerkship. *MedEdPORTAL*. 2021 Mar 25;17:11127. doi: 10.15766/mep_2374-8265.11127. PMCID: PMC8015633.
6. Miller KA, Keeney T, Fialkowski A, Srinivasan S, Singh TA, Kesselheim J, Farrell S, Cooper C, **Royce CS**. Leveraging Podcasts to Introduce Medical Students to the Broader Community of Health Care Professionals. *MedEdPORTAL*. 2021 Oct 25;17:11191. doi: 10.15766/mep_2374-8265.11191.
7. Farid H, Dalrymple JL, Mendiola M, **Royce CS,** Young B, Atkins KM. Improving the OBGYN Learning Environment Through Faculty Development. *MedEdPORTAL*. 2022 May 3;18:11246. doi: 10.15766/mep_2374-8265.11246.; PMCID: PMC9061934.
8. Ward SA, Mendiola ML **Royce C**S, Anand M, Gompers A Hacker M, Winkelman W D. Cross-Sectional Study of Resident-Reported Surgical Experience in Female Pelvic Medicine and Reconstructive Surgery. *Urogynecology* 29(7):p 597-600, July 2023.

9. Chen JJ, Gompers A, Evenson A, James BC, **Royce C**. Surgical Adaptation of the Situation Awareness Rating Technique (S-SART): Assessing Situational Awareness Among Medical Students. *J Surg Educ*. 2023 Feb;80(2):216-227.
10. Sims SM, Cox SM, Bhargava R, Everett EN, Fleming A, Graziano S, Morgan HK, Baecher-Lind L, **Royce C**, Sonn TS, Sutton JM, Morosky CM. Clerkship director confidence in medical student career advising in OBGYN. *AJOG Glob Rep.* 2023 Mar 5;3(2):100187. PMCID: PMC10090429.
11. Flier LA, Richards JB, Hacker MR, Hovaguimian A, Vanka A, Sullivan A, **Royce CS**. "Should I Say Something?": A Simulation Curriculum on Addressing Lapses in Professionalism to Improve Patient Safety. *MedEdPORTAL*. 2023 Dec 12;19:11359. PMCID: PMC10713868.
12. Ward SA, Cornely RM, Mendiola M, **Royce CS**, Winkelman WD, Hacker MR, Anand M. Education in female sexual function and dysfunction among American Urogynecologic Society members: An unmet need. *South Med J*. 2024 Jan;117(1):7-10. PMCID: PMC10756638.
13. Morgan HK, Baecher-Lind L, Bhargava R, Cox S, Everett E, Fleming A, Graziano S, Morosky C, **Royce CS**, Sonn T, Sutton J, Sims SM. OBGYN clerkship directors' experiences advising residency applicants. *AJOG Glob Rep*. 2023 Sep 16;3(4):100268. PMCID: PMC10585629.
14. Chen KT, Baecher-Lind L, Morosky CM, Bhargava R, Fleming A**, Royce CS**, Schaffir JA, Sims SM, Sonn T, Stephenson-Famy A, Sutton JM, Morgan HK; Undergraduate Medicine Education Committee; Association of Professors of Gynecology and Obstetrics. Current practices and perspectives on clerkship grading in OBGYN. *Am J Obstet Gynecol*. 2023 Sep 24:S0002-9378(23)00640-3. doi: 10.1016/j.ajog.2023.09.020. E-pub ahead of print.
15. DeAndrade S, Pelletier A, Grossman S, Lewis-O'Connor A, Dutton C, **Royce CS**, Bartz D. Trauma-Informed Care Training in U.S. and Canadian Ob/Gyn Residencies. *Violence Against Women*. 2024 Feb 14:10778012241230328. doi: 10.1177/10778012241230328. Epub ahead of print.
16. Stephenson-Famy, A., Fleming, A., Baecher-Lind, L., Bhargava, R., Chen, K., Morgan, H., Morosky, C., **Royce, C**., Schaffir, J., Sims, S., Sutton, J., Sonn, T., & Undergraduate Medicine Education, T. (2024). Impact of the United States Supreme court Dobbs versus Jackson Health Women's Organization Decision on Abortion Curricula in United States Medical Schools. *Med Res Archiv*, 12(10). doi:10.18103/mra.v12i10.5962

Other Peer-Reviewed Scholarship

1. Baecher-Lind L, Abbott J, Atkins KM, Nijjar JB, **Royce CS,** Schiff L**,** Ricciotti HA. A call to action to address gender equity within our specialty: Time's Up on waiting for change. *Obstet Gynecol* 2018 Jun:131(6);961-963.
2. **Royce CS,** Hayes MM, Schwartzstein RM. Teaching Critical Thinking: A Case for Instruction in Cognitive Biases to Reduce Diagnostic Errors and Improve Patient Safety. *Acad Med*. 2019 Feb;94(2):187-194. doi: 10.1097/ACM.0000000000002518.
3. Mackenzie MW and **Royce CS**. Endometriosis: A Common and Commonly Missed and Delayed Diagnosis. *PSNet* [internet]. Rockville (MD): Agency for Healthcare Research and Quality, US Department of Health and Human Services. 2020.
4. **Royce CS,** Everett EN, Craig LB, Fleming A, Forstein DA, Graziano SC, Hampton BS, Hopkins L, McKenzie ML, Morgan HK, Sims SM, Morosky C. To the Point: advising students applying to Obstetrics and Gynecology residency in 2020 and beyond. *Am J Obstet Gynecol*. 2021 Feb;224(2):148-157. doi: 10.1016/j.ajog.2020.10.006. Epub 2020 Oct 7; PMCID: PMC7539929.
5. Baecher-Lind, L, Fleming, A C., Bhargava, R, Cox, SM., Everett, EN, Graziano, SC, Katz NT, Sims SM, Morgan HK, Morosky CM, Sonn, TS, Sutton, JM, **Royce CS.** Medical Education and Safety as Co-priorities in the Coronavirus Disease 2019 (COVID-19) Era: We Can Do Both. *Obstet Gynecol*. 136(4):830-834, October 2020. DOI: 10.1097/AOG.0000000000004113
6. Morosky CM, Cox SM, Craig LB, Everett EN, Forstein DA, Graziano SC, Hampton BS, Hopkins L, Sims SM, Mckenzie ML, **Royce C**, Morgan HK; Undergraduate Medical Education Committee (Association of Professors

of Gynecology and Obstetrics). Integration of health systems science and women's healthcare. *Am J Obstet Gynecol*. 2022 Aug;227(2):236-243. doi: 10.1016/j.ajog.2022.04.038. Epub 2022 Apr 27.

7. Baecher-Lind L, Fleming AC, Bhargava R, Cox SM, Everett EN, Forstein DA, Madani Sims S, Morgan HK, Morosky CM, **Royce CS**, Sonn TS, Sutton JM, Graziano SC. Enhancing interprofessional collaboration and interprofessional education in women's health. *Med Educ Online*. 2022 Dec;27(1):2107419. doi: 10.1080/10872981.2022.2107419. PMCID: PMC9359162.
8. Stephenson-Famy A, Sonn T, Baecher-Lind L, Bhargava R, Chen KT, Fleming A, Kang Morgan H, Morosky CM, Schaffir JA, Madani Sims S, Sutton JM, **Royce CS.** Undergraduate Medical Education Committee of the Association of Professors of Gynecology and Obstetrics. The Dobbs Decision and Undergraduate Medical Education: The Unintended Consequences and Strategies to Optimize Reproductive Health and a Competent Workforce for the Future. *Acad Med*. 2023 Apr 1;98(4):431-435. doi: 10.1097/ACM.0000000000005083. E-pub 2022 Nov 8
9. Sonn T, Fleming AF, Bhargava R, Cox S, Everett EN, Graziano SC, Morgan HK, Madani Sims S, Morosky C**, Royce CS**, Sutton J, Baecher-Lind L. Encouraging workforce diversity- supporting medical students with mobility and sensory disabilities. *Disabil Rehabil*. 2023 Apr 19:1-5. doi: 10.1080/09638288.2023.2201511. E-pub ahead of print
10. **Royce CS**, Morgan HK, Baecher-Lind L, Cox S, Everett EN, Fleming A, Graziano SC, Sims SM, Morosky C, Sutton J, Sonn T. The time is now: addressing implicit bias in OBGYN education. *Am J Obstet Gynecol*. 2023 Apr;228(4):369-381. doi: 10.1016/j.ajog.2022.12.016. E-pub 2022 Dec 20.
11. Schaffir J, Morgan HK, Bhargava R, Baecher-Lind L, Chen KT, Fleming A, Morosky C, **Royce CS**, Sims SM, Sonn T, Stephenson-Famy A, Sutton JM. To the Point: Optimizing the Learning Environment in Labor and Delivery. *Am J Obstet Gynecol MFM*. 2023 Jul 10:101090. doi: 10.1016/j.ajogmf.2023.101090. E-pub ahead of print.
12. Baecher-Lind L, Sutton JM, Bhargava R, Chen KT, Fleming A, Morgan HK, Morosky CM, Schaffir J, Sonn T, **Royce CS,** Stephenson-Famy A, Madani Sims S. Association of Professors of Gynecology and Obstetrics Undergraduate Medical Education Committee. Strategies to Create a More Gender Identity Inclusive Learning Environment in Preclinical and Clinical Medical Education. *Acad Med*. 2023 Jul 20. doi: 10.1097/ACM.0000000000005334. E-pub ahead of print.
13. Millham LRI, Potter J, Hirsh DA, Trinh NH, **Royce CS**, Levy-Carrick NC, Rittenberg E. Incorporation of Trauma-Informed Care Into Entrustable Professional Activities for Medical Student Assessment. *Acad Med*. 2024 Jul 23. doi: 10.1097/ACM.0000000000005824. Epub ahead of print.
14. Schaffir J, Sonn T, Sutton JM, Baecher-Lind L, Bhargava R, Chen KT, Fleming A, Morgan HK, Morosky C, Royce C, Sims SM, Stephenson-Famy A. Paving the Way for Medical Students: How Smooth Should the Road Be*? J Surg Educ.* 2024 Jul;81(7):896-899. doi: 10.1016/j.jsurg.2024.03.019. Epub 2024 May 14.
15. Baecher-Lind L, Morgan HK, Bhargava R, Chen KT, Fleming A, Madani Sims S, Morosky CM, Schaffir J, Sonn T, Stephenson-Famy A, Sutton JM, **Royce CS**. Under pressure: Supporting academic faculty in demanding times. *Med Teach*. 2024 Nov 4:1-5. doi: 10.1080/0142159X.2024.2422006. Epub ahead of print.

Non-peer reviewed scientific or medical publications/materials in print or other media:

1. **Royce CS**. Cervical Cancer, Santa Barbara County. Santa Barbara Cottage Hospital Cancer Program, Annual Report. 2000.
2. **Royce CS.** Intimate Partner Violence in Pregnancy. Scientific American OBGYN Online. 2018.
3. Verma N, **Royce CS.** Sexual Assault and Human Trafficking. Scientific American OBGYN Online. 2018.

Professional educational materials or reports, in print or other media:

1. **Royce CS**. Hand-Off OBGYN Simulation. Curriculum for HMS third-year students in OBGYN Clerkship. 2012.

2. **Royce CS.** Wikipedia Project. Curriculum for fourth-year medical students at HMS to participate in editing on-line Wikipedia articles. 2014.
3. **Royce CS**. Boot Camp curriculum. 2014-2019, updated annually.
4. Bilello L, Dalrymple JL, Dubosh N, Hayes MM, Hausmann JS, King LP, McSparron J, Ricotta D, **Royce CS,** Schwartzstein RM, Singleton J. The art and science of critical thinking: a how-to guide. 2016.
5. **Royce CS**. Transition to the Principal Clerkship Experience: Professionalism curriculum. 2017-, updated annually.
6. **Royce CS**, D'Amico A, Saldana F. Residency Application Advising at Harvard Medical School. 2018.
7. Vicari LR, **Royce CS**. Faculty Orientation Guide, Department of OBGYN, BIDMC. 2019-, updated annually.
8. Contributing Author, APGO Online Medical Student Educational Objectives, Teaching Cases. Undergraduate Medical Education Committee, 2021. Available on-line at https://apgo.org/page/msostudent
9. Kim TG, Jaresova A, Teodoro NS, Young B, Farid H, **Royce CS**, Beth Israel Deaconess Medical Center Labor & Delivery Overview. Video presentation for OBGYN employee and learner orientation. 2020
10. **Royce CS.** Transition to the Principal Clerkship Experience: Gynecology: Abnormal Uterine Bleeding. Case study, student, and faculty guides.
11. Morosky C, **Royce CS.** Becoming and Leader in Academic Medicine. APGO Effective Career Development Series. Undergraduate Medical Education Committee, 2022.
12. **Royce CS**, Stephenson-Famy A, Chen KT. Assisting at Laparoscopy. APGO Basic Clinical Skills Curriculum. Undergraduate Medical Education Committee, 2023.
13. Stephenson-Famy A, Chen KT, **Royce CS**. Assisting at Vaginal surgery. APGO Basic Clinical Skills Curriculum. Undergraduate Medical Education Committee, 2023.
14. Chen KT, Stephenson-Famy A, **Royce CS**. Assisting at Abdominal surgery. APGO Basic Clinical Skills Curriculum. Undergraduate Medical Education Committee, 2023.
15. Stephenson-Famy A, Madani Sims S, **Royce CS**. Minimizing Bias is Narrative Assessment. APGO Inclusive Learning Environment Series. Undergraduate Medical Education Committee, 2023.

Clinical Guidelines and Reports:

1. **Royce CS** and LeFevre, R. Clinical Pathway: Urogynecology. 2014.
2. **Royce CS**. Departmental Policy: Intracorporeal Morcellation at the Time of Laparoscopic Hysterectomy, 2014.
3. **Royce CS** and LeFevre, R. Clinical care pathway for nurses, residents, and physicians for common uro-gynecologic procedures. 2015.
4. **Royce CS**. Departmental Policy: Same-Day Pregnancy Prevention. 2015.
5. **Royce CS**. Departmental Policy: Mandatory Surgical Pause 2012, updated 2016.
6. **Royce CS** and LeFevre, R. Clinical Pathway: Outpatient Hysterectomy. Clinical care pathway for nurses, residents and attending physicians for outpatient hysterectomy procedures. 2016.

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings:

1. **Royce CS**, O'Neill A, Shainker SA, Mackenzie M. Constructing the Pelvis: Assessment of a novel teaching approach. **First prize** for poster presentation, CREOG/APGO National Annual Meeting 2015, San Antonio, TX.
2. McKeon B, **Royce CS**, Vicari R, Haviland MJ, Newman L, Ricciotti H**.** Impact of the Resident-As-Teacher Video Series in Preparing Students to be Resident Teachers. **Innovation Prize** for Undergraduate Medical Education. Poster Presentation, Medical Education Day 2015, HMS.
3. Chen X, Atkins KM, Khachadoorian-Elia HR, **Royce CS**, York-Best CM, Johnson NR. Faculty Perspectives of Using a Standardized Oral Exam to Assess Ob/Gyn Clerkship Students. Poster Presentation. **Innovation Prize** for Undergraduate Medical Education HMS Medical Education Day 2016.
4. **Royce CS,** Atkins, KM, McKeon BA, Dalrymple J. Experiences in DOCS Clinic: Direct Observation of Clinical Skills in the OBGYN clerkship. **First prize** for Poster Presentation, CREOG/APGO National Annual Meeting, National Harbor MD, 2018.

5. Stoddard RE, Schneider L, Potter J, Trinh NH, Ochalla J, Larson E, **Royce CS**. Responding to Trauma Disclosures on the Wards: A Clinical Skills Teaching Session with a Trauma-Informed Lens. Northeastern Group on Educational Affairs 2023 Annual Conference, Burlington, VT. (Selected oral abstract presented by RE Stoddard)
6. Stoddard RE, Schneider L, Potter J, Trinh NH, Ochalla J, Larson E, **Royce CS**. Responding to Trauma Disclosures: A Clinical Skills Curriculum. Poster presentation, Shapiro Institute Center for Education Medical Education Research Day, Boston, MA, 2023. Awarded **Best Classroom Education Research Project**
7. Daddario S, Winstead H, Larson E, Schneider L, Campbell K, **Royce CS.** Simulated Delivery, Real Awareness: A Novel, Interprofessional Labor and Delivery Simulation for Pre-Clinical Medical Students. Poster presentation, Shapiro Institute Center for Education Medical Education Research Day, Boston, MA, 2023. Awarded **Best Educational Simulation Project**
8. Ward S, Mendiola ML, **Royce CS,** Anand M, Gompers A, Hacker M, Winkelman W. Cross-Sectional Study of Resident-Reported Surgical Experience in Female Pelvic Medicine and Reconstructive Surgery. Poster presentation, Shapiro Institute Center for Education Medical Education Research Day, Boston, MA, June 2023.
9. Winstead H, Conyers S, **Royce C,** Comfort A. Practice Makes Perfect: Giving Effective Chalk Talks on Labor and Delivery. Poster presentation, American College of Obstetricians and Gynecologists District 1&4 Annual Meeting, Newport RI, 2023.
10. Stoddard RE, Schneider L, Potter J, Trinh NH, Ochalla J, Larson E, **Royce CS.** Responding to trauma disclosures on the wards: a clinical skill teaching session with a trauma-informed lens. Poster presentation, Association of American Medical Colleges Learn Serve Lead Conference, Seattle WA, 2023.
11. Goldfarb C, Daddario S, Pichado LA, Myrick J, Larson E, **Royce CS.** Interprofessional Simulation to Improve Preclinical Medical Student Understanding of the Doula Role, CREOG/APGO Annual Meeting, San Antonio, TX, 2024. (Selected oral abstract presented by C Goldfarb)
12. Sadlak N, **Royce CS**, Macharia A, Rajagopalan S. Knowledge and Attitude Changes Following Workshop on Pelvic Pain in Transmasculine Individuals. Poster and Third Place Winner for Poster Presentations, CREOG/APGO Annual Meeting, San Antonio, TX, 2024.
13. Meguerdichian D, Gailius T, **Royce CS.** Transition to the Principal Clinical Experience: a multipronged curricular approach to knowledge consolidation and skill development in preparation for medical school clerkships". Poster presentation, Shapiro Institute Center for Education Medical Education Research Day, Boston, MA, 2024. Awarded **Best Medical Student Education Project**
14. Meguerdichian D, Gailius T, **Royce CS.** Transition to the Principal Clinical Experience. Poster presentation, Northeast Group on Educational Affairs, Association of American Medical Colleges, New York, NY, 2024.

Narrative Report

I am an academic specialist in general obstetrics and gynecology, and my area of excellence is teaching and educational leadership. I spend 100% of my time at BIDMC, with my responsibilities evenly split between clinical work and educational endeavors that encompass teaching, curriculum development, and advising. After spending my early career in community health, I returned to academic medicine in 2010. To pursue interest in medical education and research, I completed two highly selective, rigorous training programs—the Medical Education Fellowship through the Academy at Harvard Medical School (HMS) and the Academic Scholars and Leaders program through the Association of Professors of Gynecology and Obstetrics (APGO). Participation in these programs accelerated my development as a medical educator and leader in academic medicine. I have earned a national reputation for curricular innovation and design, and my work has been disseminated through national presentations, workshops, and educational materials and writing. My areas of scholarly interest include trauma-informed care; simulation learning; and the role of clinical reasoning in improving patient safety and health care outcomes.

I am actively involved in teaching across the medical education continuum, from preclinical students through continuing medical education courses at the national level. At the local level, I have taught in all phases of the Pathways curriculum, including the Transition to the Principle Clinical Experience, Obstetrics and Gynecology (OBGYN) clerkship didactic and clinical teaching, and the OBGYN Pre-internship Specialty track in the Clinical Capstone course. I received the Charles McCabe Faculty Prize for Excellence in Teaching, the APGO Faculty Prize for Excellence in Teaching Medical Students, and the Society for Academic Specialists in General Obstetrics and Gynecology Faculty Award. I have published five complete curricula in the Association of American Medical Colleges' (AAMC) *MedEdPORTAL*, a peer-reviewed online journal of teaching and learning resources for medical educators. Each of these includes teaching or learning modules that have been implemented and evaluated, and include one first author and two senior author publications. Currently, I have three curricula projects in review for publication in this forum. In each of these projects, I am mentoring trainees who have participated in the development, implementation, and evaluation.

My curricular innovations in simulation have been recognized nationally. Based on my work in developing a novel simulation to teach situational awareness to pre-clinical medical students, I was invited to speak at the national conference of the American Medical Association (AMA), where I spoke on the role of simulation in improving student adaptation to the clinical learning environment. This work also was featured in the AMA's online publication, S*ucceeding in Medical School*. At the National Resident Matching Program Conference, I presented a workshop on development and implementation of simulation-based transition to residency courses. Most recently, I presented, as senior author, the results of a new curriculum, "Responding to trauma disclosures on the wards: A clinical skills teaching session with a trauma-informed lens. Each of these curricula was an innovative example of co-creation of curricular materials with learners. I worked closely with students and residents to develop the material and teach the courses. In this fashion, I have provided mentorship for students and trainees in medical education and research.

My roles in medical education demonstrate leadership at the local and national level. At HMS, I am co-Course Director for a new, two-part required course in the pre-clerkship phase. This course, called "BRIDGES", is a 15-week transition to clinical medicine course which provides students entering clerkships with foundational skills to successfully adapt to the clinical learning environment. I also co-direct the Rabkin Medical Education Fellowship, where I mentor six early- to mid-career faculty fellows each year in designing and carrying out a medical education project. Within my department, I am Director for Undergraduate Medical Education and Director for Simulation, responsible for faculty development with twice yearly grand rounds focusing on educational practices and pedagogy and for designing and running annual simulations for the Department, ensuring all clinicians have

competence in procedural and communication skills needed for safe patient care. I lead regular "resident as teacher" workshops, in which trainees have observed teaching simulations to improve teaching skills. I mentor students and trainees on medical education projects including curriculum development and implementation. At the national level, I recently completed a six-year term on the Undergraduate Medical Education Committee (UMEC) for APGO—the educational society for academic obstetrician-gynecologists in the United States and Canada. As a UMEC member, I contributed to writing, editing, and publishing nine peer-reviewed policy papers in the *To The Point* series, including two on which I was first author and two on which I was senior author. I also contributed to four of UMEC's research papers on faculty perspectives on topics in OBGYN education.

I have received competitive grants to fund my medical education work. I was awarded a $250,000 grant by Controlled Risk Insurance Company/Risk Management Foundation to develop, implement and evaluate a curriculum on clinical reasoning and cognitive bias awareness in the prevention of diagnostic error. I was the principal investigator on *Mapping Entrustable Professional Activities in Obstetrics and Gynecology from Undergraduate to Graduate Medical Education* for which I received a Promising Young Investigator Grant from the Department of OBGYN at BIDMC. This novel mapping technique was later used in the development of the trauma-informed care competencies, published in *Academic Medicine* (CV publication #29).

My efforts in scholarship include writing national standards for OBGYN. While on UMEC, I served as associate editor and contributing author for the 11th edition of the Medical Student Educational Objectives, which sets the recommended educational outcomes in OBGYN education in the US and Canada. This work included extensive revisions to the APGO Teaching Cases and Outlines, which are used by faculty at medical schools across the country to teach students the core topics in OBGYN. The Teaching Cases were fully updated, revised, and structured to reflect current medical practice and to be inclusive of diversity within patient populations, thus increasing the relevancy for current learners.

Another major focus of my scholarship and work for APGO has been writing perspectives and calls to action as part of the *To The Point* series. This included a first author publication on implicit bias in OBGYN medical education (CV publication #25), and senior author publications on the role of students in clinical care during the pandemic (CV publication #20) and unintended consequences of the Dobbs decision on undergraduate medical education (CV publication #23*).* I also co-authored perspectives on improving access for medical students with disabilities and interprofessional educational opportunities in OBGYN. In each, we addressed contemporary topics in a timely fashion, contributing to the national dialogue on issues vital to medical education and development of the future workforce in women's health care and medicine.

My current research includes a multi-center, randomized, controlled study of the effect of a visual arts curriculum on clinical reasoning for internal medicine trainees, and a study of US medical school policies on parental leave policies and utilization. Additionally, I am mentoring a trainee on a scoping review of trauma-informed care in OBGYN and OBGYN medical education. With the completion of the Transition to the Principal Clinical Experience course at HMS, my co-director and I presented on the design and implementation of the course at a regional AAMC meeting. My work at the national level continues with a recent appointment as an Advisor for the APGO Academic Scholars and Leaders program, where I will teach and mentor OBGYN medical educators from across the country in a rigorous 15-month medical education and leadership program.

Lastly, I continue to work clinically with learners. I derive true joy from sharing the experience of patient care with students and residents and remain deeply committed to sharing my passion for working in the community health setting. As a hospitalist in general OBGYN, I work with students and residents regularly, providing hands-on teaching, direct observation, and workplace-based assessments. In this expanded teaching role, I am privileged to continue to care for patients while guiding the next generation of physicians toward excellence.

EXHIBIT 2

From: Patrick Romano <[redacted]
Date: Thursday, May 7, 2020 at 11:39
To: Malcolm Mackenzie <[redacted]>, Gordon Schiff <[redacted]
Cc: [redacted], "Royce,Celeste (HMFP - OBGYN)" <[redacted]>
Subject: [External] RE: PRIDE Endometriosis Case PSNet Commentary -REVISED FINAL DRAFT USE THIS VERSION

I guess from my perspective as a general internist/PCP, the interplay of delayed/missed dx and rx was not sufficiently clear. Clearly the topic of endometriosis is very important. Please let me parse the case a bit more:

A 15 year old female with no prior medical problems developed disabling menstrual cramps and very heavy bleeding at the onset of her first menstrual period. She immediately sought care from her gynecologist, who immediately started her on an oral contraceptive pill to manage her symptoms which were due to "bad periods."
PSR: Are we supposed to infer that the gynecologist's working dx was endometriosis, and they started standard first line therapy? No imaging was performed – presumably that is OK at this point – can you discuss? Presumably empiric Rx that would benefit endometriosis as well as other causes of menorrhagia is OK, but the follow-up for lack of response to RX was deficient? Perhaps it should be clearer that when patients don't respond as expected to first-line treatment, the diagnostic process should continue to establish a definitive dx?

Over the next 3 years, she continued to have very painful menstrual cramps and heavy bleeding causing her to miss school during her periods. She also began experiencing severe abdominal cramps, bloating, nausea and diarrhea. She was continued on her oral contraceptive pill by her gynecologist. She saw her primary care provider for her severe diarrhea and was diagnosed with Irritable Bowel Syndrome with Diarrhea (IBS-D). No additional diagnostic testing was pursued at that time.
She pursued a second opinion from another gynecologist who also attributed her symptoms to "bad periods", without any additional testing.
PSR: Again, there is minimal discussion of this situation, which strikes me as the most important single failure in the process – that is, the failure of treating clinicians, including a consultant specifically hired to offer a second opinion – to recognize that when first-line empiric treatment fails, then it is time to get a definitive diagnosis and institute more aggressive treatment targeted to that diagnosis. Are we going soft on the gynecologists here?

9 years after the onset of her severe menstrual symptoms and 6 years after the onset of her disabling abdominal pain and diarrhea she was referred to a gastroenterologist (GI) specialist. The specialist ordered and performed an endoscopic examination of her colon (a colonoscopy) which was showed only a "tortuous bowel." She was told this confirmed her diagnosis of IBS-D.
PSR: This is well discussed. We see the same diversion to gastroenterologists for GI workup in some women with ovarian cancer.

12 years after the onset of her symptoms, she began experiencing a sharp pain on her right side. She had an urgent CT scan done which was reported to show acute appendicitis and she was directed to the emergency room (ER), where she was sent immediately to the operating room (OR) for emergency surgery. At her post-operative appointment, she was told that her surgery was prolonged because the surgeon saw what appeared to be endometriosis lesions close to the appendix. The surgeon believed that these lesions caused the appendix to become infected. The surgeon did not call a gynecological surgeon in during the surgery or complete a biopsy (which would have allowed histopathological confirmation of endometriosis). He also did not remove any of the suspected endometriosis as he feared causing further spread of endometrial cells. The surgeon referred her to a gynecologist.
PSR: I had a little trouble with discussion here – looking for citations – because removal of endometriosis implants is beyond the usual scope of practice of a general surgeon. And it seems unlikely that a gynecologist could suddenly be called into the OR for consultation on an elective problem of long duration. I could envision an emergent intraoperative consultation for an obvious cancer or a PID-related phlegmon, but endometriosis? So the only thing I can fault the surgeon for is not doing a quick biopsy… but when the diagnosis is already obvious, does it matter? What it have affected Rx to get that biopsy on that date?

The gynecologist performed a pelvic exam and noted that she was able to palpate "deep infiltrating endometriosis" (DIE). She recommended robotic laparoscopic surgery to remove it. The patient could not afford the surgery as the gynecologist was not an in-network provider for her medical insurance.
PSR: Although this detail is interesting, disagreements among qualified specialists about the next treatment approach for a correctly-diagnosed condition are beyond our scope at PSNet. We really try to stay tightly focused on safety and error. Either this content should be removed or if it should be clarified if this was an erroneous recommendation, and if so, why.

The patient sought out an in-network gynecologist who agreed with this possibly being endometriosis. They recommended a course of Lupron injections, but the patient was unable to tolerate this due to incapacitating side effects. The gynecologist then recommended a diagnostic laparoscopy to confirm the diagnosis. She had a diagnostic laparoscopy 12 years after her initial symptoms that confirmed endometriosis via biopsy and histological confirmation. The treatment plan for the patient was definitive laparoscopic wide-field excision of the endometriosis.
PSR: Again, I lost you here because the correct diagnosis was already established, so there was no diagnostic error. The diagnostic laparoscopy was only necessary – to my reading – because standard second-line medical treatment had failed and surgery was the only remaining option. So diagnostic laparoscopy was needed to guide the surgical approach, not to make the diagnosis. So if there was an error in this process, please clarify what the error was and how it could have been prevented.

Looking back, from the time of the onset of her periods, the patient felt that providers had implied that the severity of her symptoms was due to a mental health condition. She stated that throughout her course her symptoms were often dismissed as psychological. Without a strong advocate (her mother) she feels that her physicians would not have pursued additional diagnosis and states she had been made to feel by her treatment from many providers that "she was crazy".
PSR: This is a really important point – ideally would weave it in earlier.

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EXHIBIT 3

Endometriosis: A Common and Commonly Missed and Delayed Diagnosis

Malcom Mackenzie, MD and Celeste Royce, MD | June 24, 2020
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The Case

A 15-year-old girl with no prior medical problems developed disabling menstrual cramps and heavy bleeding at the onset of her first menstrual period. She immediately sought care from a gynecologist, who started her on an oral contraceptive pill to manage her symptoms, which were attributed to "bad periods."

Over the next 3 years, her dysmenorrhea continued, and she developed severe abdominal cramps, bloating, nausea and diarrhea. She was continued on oral contraceptives by her gynecologist. She saw her primary care provider for her severe diarrhea and was diagnosed with Irritable Bowel Syndrome with Diarrhea (IBS-D). No additional diagnostic testing was pursued at that time. She pursued a second opinion from another gynecologist who also attributed her symptoms to "bad periods," without having conducted any additional testing.

Nine years after the onset of her severe menstrual symptoms and six years after the onset of her disabling abdominal pain and diarrhea, she was referred to a gastroenterology (GI) specialist. The specialist performed a colonoscopy that showed only a "tortuous bowel." She was told that this finding confirmed her diagnosis of IBS-D.

Three years later, the patient experienced “sharp” right-sided abdominal pain. She had an urgent computed tomography scan, which was interpreted as showing acute appendicitis, and was directed to the emergency room, where she was admitted for an emergency appendectomy by a general surgeon. At her postoperative appointment, the surgeon informed her that the procedure was prolonged due to endometriosis lesions close to the appendix. The patient was informed that these lesions caused the appendix to become infected. The surgeon did not call in a gynecological surgeon during the surgery or complete a biopsy. He

also did not remove any of the suspected endometriosis as he feared causing further spread of endometriosis cells. The surgeon referred her to a gynecologist.

Once the diagnosis was made by the general surgeon, the patient continued to experience delays in accessing appropriate treatment due to medical insurance coverage issues and often intolerable medication side effects from hormonal treatments – metabolic changes with weight gain as well as psychological and emotional derangements including anxiety and depression. Ultimately the patient underwent a diagnostic laparoscopy to confirm endometriosis via biopsy, and definitive surgery: laparoscopic wide-field excision of the endometriosis, which was performed 12 years after her symptoms started.

Looking back, from the onset of her periods, the patient felt that her physicians had implied that the severity of her symptoms was due to a mental health condition. She stated that throughout this time, her symptoms were often dismissed as psychological and she was made to feel that "she was crazy." Without a strong advocate (her mother), she felt that physicians would not have pursued additional diagnostic testing and effective treatment.

The Commentary

By Malcom Mackenzie, MD and Celeste Royce, MD

This case demonstrates many typical features of both endometriosis and its misdiagnosis. Despite a prevalence of 1–8.6% of women of reproductive age, rising to 9-68% of infertile women, and 15-71% of women with chronic pelvic pain,[1-3] it is often not diagnosed in a timely or accurate way. Average delays range from 6 to 11 years, often despite disabling and ongoing symptoms,[4] with symptoms being "treated" for years despite patients not having received a definitive diagnosis.[5] Endometriosis poses a particular diagnostic challenge both because it can involve multiple organs (see below) and because female pelvic pain itself is a highly complex, multifactorial and often difficult to treat condition. Nonetheless, the most commonly recognized etiology for chronic pelvic pain is endometriosis, adenomyosis and associated spasms of pelvic floor muscle.[6]

Missed Opportunities for a Timely Diagnosis and Treatment

Several aspects of this case illustrate common causes of the delay in diagnosis frequently observed with endometriosis. When the patient initially sought care, she was given a diagnosis of primary dysmenorrhea. Although primary dysmenorrhea is common,[7] it is a diagnosis of exclusion; other etiologies should be considered. The first gynecologist seems to have not considered other etiologies as no testing was performed. This gynecologist may have not considered endometriosis in such a young adolescent, as this patient did not “fit” the more common presentation of an older adolescent or young adult. This problem has been described as “representativeness restraint” (or heuristic) because a physician focused on recognizing common patterns may overlook atypical variants of the disease. The patient’s symptom of heavy bleeding was particularly worrisome; evaluation for von Willebrand’s disease should be part of the workup for heavy bleeding at menarche. Imaging is not always indicated as part of the initial workup for primary dysmenorrhea, particularly if the patient’s menstrual cycles are regular. However, testing for sexually transmitted infections, coagulation disorders, and anemia should be performed, along with a physical exam to detect structural anomalies such as partially imperforate hymen. It is impossible to know if the first gynecologist considered endometriosis; since the initial treatment for endometriosis consists of non-steroidal anti-inflammatory agents and combined oral contraceptives, it is possible that these medications were prescribed for symptom relief and as empiric treatment of possible endometriosis. Premature closure on the diagnosis of dysmenorrhea resulted in no further investigation.

When the patient did not improve despite adequate first-line therapy for dysmenorrhea, an opportunity for improved care and diagnosis was missed. Persistent dysmenorrhea should have prompted further search for the etiology of her symptoms. Diagnostic evaluation may include imaging, but the gold standard for diagnosis of endometriosis is laparoscopy with peritoneal biopsy of any suspected lesions. Delaying or not considering diagnostic laparoscopy in a young adolescent may have reflected bias, in that the gynecologist may have assumed a young person would rather not have surgical scars or be physically exposed in the operating room, due to a potentially “unnecessary” surgery. This type of paternalism may play a role in gynecologists’ reluctance to suggest diagnostic surgery, and results in a missed opportunity for shared

decision-making with patients and their families. Accepting a patient's "painful periods" as a condition of womanhood is another stereotypical bias that may have played a role in limiting the workup.

The second gynecologist also contributed to the delayed diagnosis. This consultant clearly accepted the working diagnosis of primary dysmenorrhea and did not pursue further diagnostic testing. The cognitive bias of anchoring (wherein first diagnostic impressions persist or are even cemented despite contradictory evidence) seems to have prevented consideration of any other explanation.[8] To be fair, however, the same hormonal management or variations of it – progesterone-only pills, implants, shots or intrauterine devices – would have been a standard treatment for either primary dysmenorrhea or endometriosis.

When the patient later developed gastrointestinal symptoms, the primary care provider made a diagnosis of IBS-D based on those symptoms. A search-satisfying diagnostic error[9] seems to have then occurred, as no further workup was performed for several years. The lack of an evaluation for what is described as "severe" diarrhea is also concerning because other infectious or inflammatory gastrointestinal conditions could have been missed. As bowel involvement by endometriosis typically begins with serosal implants that later grow or erode into the mucosa, it is unlikely that endometriosis would have been identified, even if this patient had undergone imaging or colonoscopic evaluation.

Indeed, when colonoscopy was performed several years later, no mucosal abnormalities were identified, leading to "confirmation" of the previous syndromic diagnosis of IBS-D. The gastroenterologist noted tortuosity, which may have been a sign of colo-sigmoid fixation to the pelvic sidewalls, the posterior uterine wall or the left pelvic brim. But tortuosity is a nonspecific finding of uncertain significance, and its link to a gynecologic condition (e.g., extraluminal endometriosis-induced tissue adherence) probably wasn't recognized by the gastroenterologist as a cause of GI symptoms.

The Challenges in Diagnosing Endometriosis

This 15-year-old with menarchal onset of severe dysmenorrhea to the point of disability was appropriately seen by a gynecologist who

rightly started hormonal suppression of her “bad periods.” The first line treatment, oral contraceptives (and presumably NSAIDs), was consistent with a diagnosis of endometriosis being considered. The workup for primary dysmenorrhea might include an ultrasound to look for anatomic abnormalities of the uterus, fallopian tubes or ovaries, but endometriosis most often is not “visible” on imaging, as adhesions can be difficult to identify via this diagnostic method.[10] It is important for clinicians to consider the limitations of imaging studies when interpreting results, especially for endometriosis.[11]

Pain is the most common feature of endometriosis that leads patients to seek care. The main types of pain experienced by patients with endometriosis include:

1. Dysmenorrhea - Pain with periods, initially cyclical. Not all endometriosis patients present with truly cyclic pain, but the presence of it does increase likelihood a patient has endometriosis. Missing school because of dysmenorrhea when in middle school has a high positive predictive value for this condition.[12,13] Additional factors suggesting the diagnosis include a first-degree family history of endometriosis, cyclic dysmenorrhea that interrupts activities of daily living, and onset of dysmenorrhea with menarche. Unfortunately, societal and cultural expectations of dysfunction and pain during menses are common, even when the severity of the pain leads to missed school or work, or to visits to the emergency department.
2. Dyspareunia - Pain with intercourse, specifically deep pelvic pain, which may be unilateral and persist sometimes for hours or days after intercourse. This can be a compelling reason for patients to seek care but is often misinterpreted by patients and physicians as a normal consequence of sexual activity.

Another key difficulty in diagnosing endometriosis is that it does not necessarily present as a purely gynecologic condition. Ectopic endometrial tissue implants throughout the pelvis and abdomen may have deleterious effects on all involved structures, leading to pain and dysfunction of the involved organ(s). Implants may be on:

1. Bowel - Leading to diarrhea, constipation, nausea, vomiting, bloating, rectal bleeding, food intolerances, and even bowel obstruction in advanced disease. Since implants are serosal, they are typically missed on colonoscopy, and since they are often microscopic or very small in size, they may not be visible on imaging. Many endometriosis patients carry a prior GI diagnosis, such as irritable bowel syndrome or Crohn's disease, that was not determined through biopsy. Endometriosis has been found in 3-5% of appendix specimens removed at laparoscopy among women with chronic pelvic pain.[14]
2. Bladder/Ureters - Leading to recurrent UTI-like symptoms, hematuria, painful voiding, incontinence, bladder spasm, and potentially to ureteral obstruction that can lead to renal failure. Many patients express histories or are diagnosed with "recurrent UTIs" despite having received no testing, or even negative test results, for them or carry a presumptive diagnosis of interstitial cystitis (IC) based on minimal cystoscopic findings.
3. Peripheral Nerves - Leading to leg pain, abdominal muscle pain, chronic back pain, and rarely to loss of function and disability. Cases associated with sciatica and paraplegia have been documented.[15]
4. Diaphragm and Thorax - Leading to chronic shoulder pain, pleuritic chest pain, and sometimes to erosive lesions that may cause hemo- and pneumo-thorax and pericarditis.[16]

Given this possibility of multi-organ involvement, patients with endometriosis are often referred to multiple specialists, contributing to a delay in diagnosis while alternative etiologies are considered. Patients sometimes describe taking a "grand tour"[17] of specialists including not just gastroenterologists but endocrinologists for metabolic syndrome/polycystic ovarian syndrome, rheumatologists for undifferentiated inflammatory conditions, neurologists for neuropathic conditions, and orthopedics for chronic back pain, leg pain or even shoulder pain. After many years of unremitting pain with no apparent cause (and sometimes

earlier in their diagnostic journey), patients are commonly referred to psychiatrists for anxiety and depression, often as a consequence rather than the cause of pain.

The Correct Diagnosis is Finally Made

Not until the patient in this case had acute abdominal pain with appendicitis did she receive the correct diagnosis – and ironically, the diagnosis was made without a biopsy. It is commendable the general surgeon recognized endometriosis might be present; however, if the diagnosis is in doubt, biopsy of a representative lesion and removal of visible lesions is recommended.[3] Biopsy is considered the gold standard for diagnosis, but the need for biopsy-proven disease has been debated.[3] If a surgeon does not feel comfortable with performing a biopsy, as in this case, or is unsure of the need for one, holding an intraoperative gynecologic consultation is the preferred course of action, but referring a patient to a gynecologist postoperatively is also reasonable. However, the intraoperative management in this case demonstrated a lack of understanding by the general surgeon of the natural history of endometriosis; disease dissemination does not occur as a consequence of excisional biopsy – a confusion perhaps between the malignant and the benign (endometriosis).[18]

After further delays in the patient accessing care due to insurance issues, a gynecologist made a definitive diagnosis of the presence of endometriosis based on pathology.[19] It is unclear from the literature if pathologic confirmation of diagnosis is cost-effective; a 2000 study showed three months of empiric treatment for endometriosis to be less costly than laparoscopy.[20] A more recent Cochrane meta-analysis review points out that non-surgical diagnoses via physical findings combined with transvaginal ultrasound imaging have greater or similar accuracy and lower risks than laparoscopy and therefore approach the criteria required to replace laparoscopy.[21] Shared decision-making about surgery should include a clear explanation of the risks and potential benefits of undergoing the surgery and take into account the patient's preferences. In the adolescent population, an aggressive approach to primary dysmenorrhea may result in an unacceptably high rate of surgical intervention.[22]

For this patient, it seems clear that, given the failure of multiple trials of medical therapy, laparoscopic evaluation should have been

performed much earlier. Surgical treatment of endometriosis by removal or ablation of recognized implants provides significant symptom relief, often long-lasting. The use of subsequent hormonal treatment or suppression is of unclear benefit.[23] Absent surgical treatment, patients often continue to experience symptoms.[24]

According to the patient in this case, perhaps the most damaging aspect of the disease was not the symptoms or the side effects of treatment but rather the persistent dismissal of her symptoms as "normal." This experience of "victim-blaming" – the implication that her symptoms were psychogenic or in some way self-induced – is commonly reported by endometriosis patients.[25] Viewed in this light, the associated anxiety and depression are not unexpected. Alienation from the healthcare system due to emotional distress is common and may further delay diagnosis. Many endometriosis patients have an intuitive sense that something is desperately wrong as they suffer from persistent pain and dysfunction. Repeated dismissal of their symptoms and their experience is understandably devastating.[25] On a health systems level, the historic and systemic under-investment in women's health[26] - from education of trainees to research in effective treatments for conditions unique to women - magnifies the alienation and distrust that can develop from professional disregard of the lived experience of women who feel the pain of endometriosis and have often long suffered with its symptoms. The evaluation of adolescents with severe dysmenorrhea – who may have difficulty advocating for themselves - represents another realm in which healthcare professionals need to listen to and believe their patients.

Take-Home Points

- The presentation of endometriosis often involves multi-organ symptoms.
- The prolonged average time interval from symptom onset to diagnosis of endometriosis is the result of fundamental misconceptions and gaps in knowledge regarding the disease, its pathogenesis, natural history, presentation, limited utility of imaging, and treatment.

- Because endometriosis often involves multiple organ systems including GI, genitourinary, peripheral nervous, and respiratory systems, patients are often referred to specialists who need to consider this diagnosis. Likewise, primary care physicians and gynecologists need to fully appreciate the myriad “non-gynecologic” manifestations of this disease.
- Imaging studies to diagnose endometriosis frequently result in false negative findings and providers must consider the limitations of these studies instead of dismissing patients’ symptoms.
- Failure of standard hormonal treatment to provide symptom control does not necessarily mean that the diagnosis of endometriosis is incorrect.
- Accurate diagnosis of endometriosis requires active and empathetic listening to patients’ complaints, informed by an understanding of the presentation and additional medical history of the patient and, most importantly, avoidance of “normalizing” pain.
- Although not germane to this particular case, it is important to note that endometriosis can occur in trans and non-gender-conforming people and lack of understanding this fact could make diagnosis in these populations even more challenging. Therefore, endometriosis should be considered in the differential diagnosis for any person presenting with chronic abdominal or pelvic pain.

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The long standing process for submitting PSNet WebM&M case submissions is anonymous. Users may contribute by submitting a case at the following link: https://psnet.ahrq.gov/webmm/submit-case

Periodically, the Primary-Care Research in Diagnosis Errors (PRIDE) Learning Network, a collaborative project convened by the Brigham and Women's Hospital Center for Patient Safety Research and Practice, and the State of Massachusetts Betsy Lehman Center for Patient Safety, will submit cases and commentaries to PSNet. This case was produced in cooperation with the PRIDE Learning Network, PRIDE is funded by a grant from the Gordon and Betty Moore Foundation. The case was submitted by Madalene Zale, MPH and Allyson Bontempo, MA PhD candidate.

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EXHIBIT 4

Endometriosis: A Common and Commonly Missed and Delayed Diagnosis

THE CASE

A 15-year-old girl with no prior medical problems developed disabling menstrual cramps and heavy bleeding at the onset of her first menstrual period. She immediately sought care from a gynecologist, who started her on an oral contraceptive pill to manage her symptoms, which were attributed to "bad periods."

During the next three years, her dysmenorrhea continued and she had severe abdominal cramps, bloating, nausea, and diarrhea. She saw her primary care provider and was diagnosed with irritable bowel syndrome with diarrhea (IBS-D). No additional diagnostic testing was performed. She pursued a second opinion from another gynecologist, who also attributed her symptoms to bad periods without conducting any additional testing.

Nine years after the onset of her dysmenorrhea and six years after the onset of the abdominal pain and diarrhea, she was referred to a gastroenterology specialist. The specialist performed a colonoscopy that showed only a "tortuous bowel," technically confirming IBS-D. Three years later, the patient experienced sharp right-sided abdominal pain. She underwent an urgent computed tomography scan that showed acute appendicitis, so she was admitted for an emergency appendectomy. Postoperatively, the general surgeon informed the patient that her procedure was prolonged because of endometriosis lesions close to the appendix, which had caused the subsequent infection. The surgeon referred her to a gynecologist. After the surgeon's diagnosis, the patient continued to experience delays in treatment because of insurance coverage problems. Finally, 12 years after her symptoms began, the patient underwent a laparoscopic wide-field excision of the endometriosis.

The patient felt that her physicians wrongly believed her symptoms were the result of a mental health condition. She said that the physicians often labeled her symptoms as psychological in nature and made her feel that "she was crazy." Without a strong advocate (her mother), she believed that physicians would not have pursued additional diagnostic testing or effective treatment.

DISCUSSION

This case illustrates many typical features of both endometriosis and its misdiagnosis. Despite a prevalence of 1% to 8.6% among women of reproductive age that rises to 9% to 68% among infertile women and 15% to 71% among women with chronic pelvic pain,[1,2] endometriosis often is not diagnosed in a timely or accurate way. Average delays in identification range from 6 to 11 years despite patients experiencing disabling and ongoing symptoms that are "treated" for years without a definitive diagnosis. Endometriosis poses a particular diagnostic challenge because it can involve multiple organs and because female pelvic pain itself is a highly complex, multifactorial, and an often difficult-to-treat condition. The most commonly recognized etiology for chronic pelvic pain is endometriosis, adenomyosis, and associated spasms of pelvic floor muscle.[3]

This case illustrates common causes of delay in diagnosis of endometriosis. When this patient initially sought care, she was diagnosed with primary dysmenorrhea. Although primary dysmenorrhea is common, her provider did not consider other etiologies. The physician could have had "representativeness restraint" (or heuristic) tendencies, which is when a provider is so focused on recognizing common patterns that he or she may overlook atypical variants of a disease. Although nonsteroidal anti-inflammatory agents and combined oral contraceptives were prescribed for symptom relief, premature closure on the diagnosis of dysmenorrhea resulted in no additional investigation.

The patient did not improve despite therapy for dysmenorrhea, so there should have been a deeper examination of the cause of her symptoms. Diagnostic evaluation can include imaging or laparoscopy with peritoneal biopsy. Delaying or not considering diagnostic laparoscopy in a

http://doi.org/10.1002/aorn.13554

young adolescent may reflect bias. This type of paternalism plays a role in gynecologists' reluctance to suggest diagnostic surgery. Accepting a patient's painful periods as a "condition of womanhood" is another stereotypical bias that may have played a role in limiting the workup.

The second gynecologist also contributed to the delayed diagnosis. This consultant clearly accepted the working diagnosis of primary dysmenorrhea and did not pursue additional diagnostic testing. *Anchoring*, a cognitive bias wherein initial diagnostic impressions persist or are even cemented despite contradictory evidence, seems to have prevented the second provider from considering any other explanation.[4] When the patient later developed gastrointestinal symptoms, the primary care provider made a diagnosis of IBS-D based on those symptoms. No additional workup was performed for several years.

Another key difficulty in diagnosing endometriosis is that it does not necessarily present as a purely gynecologic condition. Ectopic endometrial tissue implants throughout the pelvis and abdomen may have deleterious effects on all involved structures, leading to pain and dysfunction of the involved organs. Implants may be on the bowel, bladder, ureters, peripheral nerves, diaphragm, and thorax. Because of this, patients with endometriosis often are referred to multiple specialists, contributing to a delay in diagnosis while the providers consider alternative etiologies.

The authors of a Cochrane meta-analysis found that nonsurgical diagnoses via physical findings combined with transvaginal ultrasound imaging have similar or greater accuracy and carry lower risk than laparoscopy.[5] In the adolescent population, an aggressive approach to primary dysmenorrhea could result in an unacceptably high rate of surgical intervention. For this patient, it seems clear that, given the failure of multiple trials of medical therapy, her physicians should have performed a laparoscopic evaluation much earlier. Without surgical treatment, patients often continue to experience symptoms.[6]

According to the patient in this case, the most damaging aspect of the disease was not the symptoms or the side effects of treatment but the persistent dismissal of her symptoms as "normal." This experience of victim blaming—the implication that her symptoms were psychogenic or in some way self-induced—is commonly reported by endometriosis patients.[7] Alienation from the health care system because of emotional distress is common and may further delay diagnosis. Many endometriosis patients have an intuitive sense that something is wrong because they continue to experience persistent pain and dysfunction. Repeated dismissal of their symptoms and their experience is understandably devastating. On a health systems level, the historic and systemic underinvestment in women's health[8]—from education of trainees to research in effective treatments for conditions unique to women—magnifies the alienation and distrust that can develop from professional disregard of the lived experience of women who feel the pain of endometriosis and have often long endured its symptoms.

PERIOPERATIVE POINTS

- Because endometriosis often involves multiple organ systems, including gastrointestinal, genitourinary, peripheral nervous, and respiratory, patients often are referred to specialists who need to consider endometriosis.
- Imaging studies to diagnose endometriosis frequently result in false negative findings, and providers must consider the limitations of these studies instead of dismissing patients' symptoms.
- Endometriosis can often be seen during abdominal surgeries performed for another reason.
- Pain is not "normal." There is usually a physiological reason for it.

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EXHIBIT 5

Synthesis Lectures on Assistive, Rehabilitative, and Health-Preserving Technologies

SYNTHESIS
COLLECTION OF TECHNOLOGY

Lawrence L. Weed (1923–2017)
Lincoln Weed

Ending Medicine's Chronic Dysfunction

Tools and Standards for Medical Decision Making

Springer

Ending Medicine's Chronic Dysfunction: Tools and Standards for Medical Decision Making

Ending Medicine's Chronic Dysfunction: Tools and Standards for Medical Decision Making
Lawrence L. Weed (1923–2017) and Lincoln Weed

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SYNTHESIS LECTURES ON ASSISTIVE, REHABILITATIVE, AND HEALTH-PRESERVING TECHNOLOGIES
Lecture #16

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Ending Medicine's Chronic Dysfunction: Tools and Standards for Medical Decision Making

Lawrence L. Weed (1923–2017)

Lincoln Weed

SYNTHESIS LECTURES ON ASSISTIVE, REHABILITATIVE, AND HEALTH-PRESERVING TECHNOLOGIES #16

driven processes. The necessary tools should guide the human mind in two basic functions: applying medical knowledge to patient data, and using structured health records to organize and communicate the processes of care over time. The tools are described in Chapters 7–9.

This section provides a few examples involving diagnosis. In considering these examples and the processes involved, keep in mind the following conclusion from a study of diagnostic error:

> Most errors were related to patient-practitioner *clinical encounter-related processes, such as taking medical histories, performing physical examinations, and ordering tests.* … preventive interventions must focus on common contributory factors, particularly those that influence *the effectiveness of data gathering and synthesis in the patient-practitioner encounter* [emphasis added].[39]

3.1.1 TWELVE YEARS OF MISERY

Pelvic pain in women has a number of possible causes. One is endometriosis, a disease where tissue normally lining the inside uterine wall grows outside the uterus. This condition is common and well known as a cause of pelvic pain. Yet it often goes undiagnosed. The following summarizes such a case.[40]

A healthy 15-year-old girl developed disabling menstrual cramps and heavy bleeding with her first menstrual period. A gynecologist immediately started her on an oral contraceptive pill as a treatment for "bad periods."

For the next three years her menstrual cramps continued, and she developed severe abdominal cramps, bloating, nausea, and diarrhea. Her gynecologist continued her on oral contraceptives. She saw her primary care doctor for her severe diarrhea; his diagnosis was Irritable Bowel Syndrome with Diarrhea (IBS-D). This became a *de facto* final diagnosis (as distinguished from a preliminary "working" diagnosis), because no additional diagnostic testing was pursued at the time. She obtained a second opinion from another gynecologist who also attributed her symptoms to "bad periods," again without additional testing.

Nine years after her initial menstrual pain began and six years after her disabling abdominal pain and diarrhea began, this girl was referred to a gastroenterology (GI) specialist. The specialist performed a colonoscopy that showed only a "tortuous bowel." The GI doctor told her this finding confirmed the IBS-D diagnosis.

[39] Singh, H., Giardina, T. D., Meyer, A. N., Forjuoh, S. N., Reis, M. D., and Thomas, E. J., Types and origins of diagnostic errors in primary care settings. *JAMA Intern Med* 2013;173:418–24. DOI: 10.1001/jamainternmed.2013.2777.

[40] The case summary is paraphrased from Mackenzie, M. and Royce, C. "Endometriosis: A Common and Commonly Missed and Delayed Diagnosis," Agency for Healthcare Research and Quality/Patient Safety Network, published June 2020. The case summary is followed by commentary, quoted below.

Three years later, the girl experienced "sharp" right-sided abdominal pain. At the emergency room a computed tomography scan was interpreted as showing acute appendicitis. She then had an emergency appendectomy by a general surgeon. At her postoperative appointment, the surgeon informed her that endometriosis lesions close to the appendix, which prolonged the surgery, had caused the appendix to become infected. The surgeon did not call in a gynecological surgeon during the surgery or complete a biopsy. Nor did he remove any of the suspected endometriosis as he feared causing further spread of endometriosis cells. The surgeon referred her to a gynecologist.

The girl experienced often intolerable medication side effects from hormonal treatments—metabolic changes with weight gain as well as psychological and emotional derangements including anxiety and depression. Ultimately, diagnostic laparoscopy confirmed endometriosis via biopsy, and definitive laparoscopic surgery removed the endometriosis tissues. This happened 12 years after the girl's symptoms started.

Looking back, the girl felt that from the beginning that her symptoms were often dismissed as psychological. She was made to feel that "she was crazy." Without a strong advocate (her mother), she felt that doctors would not have pursued additional diagnostic testing and effective treatment.

The above summary of the case was followed by detailed commentary, beginning with "Missed Opportunities for a Timely Diagnosis and Treatment." Some of the missed opportunities arose from disorganized decision making and recordkeeping. Specifically (citations omitted):

- "It is impossible to know if the first gynecologist considered endometriosis; since the initial treatment for endometriosis consists of non-steroidal anti-inflammatory agents and combined oral contraceptives, it is possible that these medications were prescribed for symptom relief and as empiric treatment of possible endometriosis. Premature closure on the diagnosis of dysmenorrhea resulted in no further investigation…. "

- "The second gynecologist also contributed to the delayed diagnosis. This consultant clearly accepted the working diagnosis of primary dysmenorrhea and did not pursue further diagnostic testing. The cognitive bias of anchoring (wherein first diagnostic impressions persist or are even cemented despite contradictory evidence) seems to have prevented consideration of any other explanation [citation omitted]. To be fair, however, the same hormonal management or variations of it—progesterone-only pills, implants, shots or intrauterine devices—would have been a standard treatment for either primary dysmenorrhea or endometriosis."

- After IBS-D diagnosis, "no further workup was performed for several years," which meant that "other infectious or inflammatory gastrointestinal conditions could have been missed."

- The GI doctor later performed a colonoscopy and noted a "tortuous bowel." He misinterpreted this finding as confirming the IBS-D diagnosis. In fact, "tortuosity is a nonspecific finding of uncertain significance, and its link to a gynecologic condition … probably wasn't recognized by the gastroenterologist as a cause of GI symptoms."

Further commentary included the following points (citations omitted):

- "Average delays [in diagnosis of endometriosis] range from 6 to 11 years, often despite disabling and ongoing symptoms, with symptoms being 'treated' for years despite patients not having received a definitive diagnosis [citations omitted]. Endometriosis poses a particular diagnostic challenge … Nonetheless, the most commonly recognized etiology for chronic pelvic pain is endometriosis, adenomyosis and associated spasms of pelvic floor muscle."

- "Given this possibility of multi-organ involvement, patients with endometriosis are often referred to multiple specialists, contributing to a delay in diagnosis while alternative etiologies are considered. Patients sometimes describe taking a 'grand tour' of specialists including not just gastroenterologists but endocrinologists for metabolic syndrome/polycystic ovarian syndrome, rheumatologists for undifferentiated inflammatory conditions, neurologists for neuropathic conditions, and orthopedics for chronic back pain, leg pain or even shoulder pain. After many years of unremitting pain with no apparent cause (and sometimes earlier in their diagnostic journey), patients are commonly referred to psychiatrists for anxiety and depression, often as a consequence rather than the cause of pain. …"

- "According to the patient in this case, perhaps the most damaging aspect of the disease was not the symptoms or the side effects of treatment but rather the persistent dismissal of her symptoms as 'normal.' This experience of 'victim-blaming'—the implication that her symptoms were psychogenic or in some way self-induced—is commonly reported by endometriosis patients. Viewed in this light, the associated anxiety and depression are not unexpected."

- "Alienation from the healthcare system due to emotional distress is common and may further delay diagnosis. Many endometriosis patients have an intuitive sense that something is desperately wrong as they suffer from persistent pain and dysfunction. Repeated dismissal of their symptoms and their experience is understandably devastating."

- "On a health systems level, the historic and systemic under-investment in women's health - from education of trainees to research in effective treatments for conditions unique to women - magnifies the alienation and distrust that can develop from pro-

fessional disregard of the lived experience of women who feel the pain of endometriosis and have often long suffered with its symptoms. The evaluation of adolescents with severe dysmenorrhea—who may have difficulty advocating for themselves—represents another realm in which healthcare professionals need to listen to and believe their patients."

The commentary concluded with a number of "take-home points," which included the following:

- "The prolonged average time interval from symptom onset to diagnosis of endometriosis is the result of fundamental misconceptions and gaps in knowledge regarding the disease, its pathogenesis, natural history, presentation, limited utility of imaging, and treatment."
- "Because endometriosis often involves multiple organ systems including GI, genitourinary, peripheral nervous, and respiratory systems, patients are often referred to specialists who need to consider this diagnosis. Likewise, primary care doctors and gynecologists need to fully appreciate the myriad 'non-gynecologic' manifestations of this disease."
- "Accurate diagnosis of endometriosis requires active and empathetic listening to patients' complaints, informed by an understanding of the presentation and additional medical history of the patient and, most importantly, avoidance of "normalizing" pain."

3.1.2 TUNNEL VISION BY TEN DOCTORS IN FIVE SPECIALTIES[41]

For three years Carol Hardy-Fanta consulted a series of doctors about her medical problem. The problem was repeated falls for no apparent reason. None of the ten doctors—her internist, four orthopedists, three neurologists, a rheumatologist, and a podiatrist—could arrive at a successful diagnosis. They did come up with various diagnostic hypotheses, but none of those explained all her symptoms or led to successful treatment. Ms. Hardy-Fanta herself researched her problem, identified the correct diagnosis as a possibility, and pushed her doctors to consider her idea after they initially rejected it.

At the time her falling problem began, she had been experiencing hip pain, foot pain, and a change in her stance. The podiatrist prescribed a walking boot, which seemed to worsen her hip pain. Her internist diagnosed bursitis, which would account for the hip pain and possibly the change in her stance. He recommended physical therapy. But her pain continued, so she next consulted a rheumatologist. He ordered MRI scans and found only mild hip arthritis. Then she went

[41] This case is reported in an April 20, 2020 article, She fell more than 30 times. For three years, doctors couldn't explain why, from the *Washington Post* Medical Mysteries series.

EXHIBIT 6

From: Patrick S Romano
Sent: Monday, February 3, 2025 12:34 PM
To: Royce,Celeste (HMFP - OBGYN) <[redacted]; Mackenzie,Malcolm (MAH) <[redacted]; Schiff, Gordon,M.D.
[redacted]
Cc: [redacted]
Subject: RE: [External] RE: PRIDE Endometriosis Case PSNet Commentary REMOVED

I regret to inform you that your wonderful Case and Commentary from 2020 on "Endometriosis: A Common and Commonly Missed and Delayed Diagnosis," has been removed from the PSNet website due to a perception that it violates the White House policy on websites "that inculcate or promote gender ideology" (attached).
It is still visible through the Wayback machine,
https://web.archive.org/web/20241113093130/https://psnet.ahrq.gov/web-mm/endometriosis-common-and-commonly-missed-and-delayed-diagnosis

Please understand that your publication has not been deleted; it is simply archived so it can be restored to public access at a future time.

If you have any connections or influence that might be helpful in restoring factual and unbiased content of this type, please let me know or use your best judgment. Gordy and I have already been in contact with the Boston Globe and others on this topic.

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EXHIBIT 7

From: Patrick S Romano <[redacted]>
Sent: Thursday, February 6, 2025 10:27 AM
To: croyce <[redacted]>; Mackenzie,Malcolm (MAH) <[redacted]>; Schiff, Gordon D.,MD <[redacted]>
Cc: [redacted]
Subject: removed commentaries and interviews - UPDATE

External Email - Use Caution

To Harvard-affiliated PSNet colleagues…

As of this morning, AHRQ has received approval to re-post your original commentaries, which we have been discussing over the last several days.
However, the condition is the removal of the problematic words – i.e., the words "transgender" and "LGBTQ".
In the case of Gordy's commentary, this entails simply editing out just three words from a list of risk factors for suicide.
In the case of Malcolm's commentary, this entails editing out just the very last sentence ("Although not germane to this particular case, it is important to note that endometriosis can occur in trans.."
These conditions are non-negotiable.

My counter-condition for this restoration was the addition of a prominent editor's note, along these lines:
"This article was updated on February 5, 2025 to comply with President Trump's Executive Order, *Defending Women from Gender Ideology Extremism and Restoring Biological Truth to the Federal Government*."
(I also proposed identifying the words that were edited out, but that didn't fly…)

I told AHRQ that I would give each affected author(s) the choice of accepting this set of conditions for restoration, or not.
If you are unable to accept this condition, I understand completely and will continue to work independently for unconditional restoration (see NYT, Washington Post, etc.).
However, I consider it UNLIKELY that unconditional restoration will occur during the Trump Administration, so this is probably our best shot at restoration in the current policy environment.

I apologize for having to give you a very mild version of Sophie's choice, but such is the current situation… please take the time you need to consider the options, and feel free to make different decisions and communicate with me separately. (Sadly, I have several of these email to send, so trying to be efficient.)

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EXHIBIT 8

From: Royce, Celeste (HMFP - OBGYN) <[redacted]
Sent: Friday, February 7, 2025 7:44 AM
To: 'Schiff, Gordon D.,MD' <[redacted]; Patrick S Romano <[redacted]
Cc: [redacted] Mackenzie, Malcolm <[redacted]
Subject: RE: removed commentaries and interviews - UPDATE

Hi everyone,
For the endometriosis article, I would be okay with 1) using Patrick's caveat statement 2) changing the sentence to "…it is important to note endometriosis can occur in any woman and is a rare but possible diagnosis in men". I would vote against removing the sentence entirely, since the whole point of the piece is endo is frequently missed or delayed in diagnosis, and this sentence is encouraging readers to have an open mind.
(which seems to be lacking in the current administration)
In solidarity,

Celeste
PS- spoke to the globe anyway 😊

EXHIBIT 9

From: Patrick S Romano <[redacted]>
Sent on: Friday, February 7, 2025 2:44:13 PM
To: Royce, Celeste (HMFP - OBGYN) <[redacted]>; 'Schiff, Gordon D.,MD' <[redacted]>
CC: Mackenzie, Malcolm <[redacted]>
Subject: [External] RE: removed commentaries and interviews - UPDATE

I do apologize for this, but as I indicated before, the condition for restoration is non-negotiable. I tried.
It is the Administration's view that the terms men, man, male, etc., must only be used for persons who are biologically male (which they define as "the sex that produces the small reproductive cell").
Therefore, in the Administration's view, endometriosis is not a possible diagnosis in men (setting aside extremely rare intersex patterns).
For "interesting" reading: https://www.whitehouse.gov/presidential-actions/2025/01/defending-women-from-gender-ideology-extremism-and-restoring-biological-truth-to-the-federal-government/

Sorry, but the condition is deletion of the sentence with posting of the editors' note as to the reason for editing.

I am talking with UC Office of the President lawyers this morning, by the way, regarding other options (besides the Wayback Machine) for maintaining public access to the original text, whether or not authors agree to the required edits for reposting on PSNet.

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EXHIBIT 10

From: Patrick S Romano
Sent: Monday, February 10, 2025 8:28 AM
To: Royce, Celeste (HMFP - OBGYN) <[redacted]; Mackenzie, Malcolm <[redacted]>
Subject: RE: removed commentaries and interviews - UPDATE

To my surprise, Celeste's proposed edit has been accepted. (I can't help but wonder whether the media coverage helped.)

Revised edit: "Although not germane to this particular case, it is important to note that endometriosis can occur ~~in trans and non-gender conforming people and lack of understanding this fact could make diagnosis in these populations even more challenging~~ in any woman and is a rare but possible diagnosis in men."

Thank you for this creative suggestion. We will try similar edits to other archived resources, but the ban on "LGBTQ" for the T is harder to overcome.
Your paper should be reposted by EOD.
Respectfully,

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EXHIBIT 11

From: Patrick S Romano <[redacted]
Sent on: Wednesday, February 12, 2025 5:42:19 PM
To: Royce, Celeste (HMFP - OBGYN) <[redacted]>; Mackenzie, Malcolm <[redacted]>
Subject: [External] FW: removed commentaries and interviews - UPDATE

Well, it seems that AHRQ program staff were hoping that this edit would fly, but as I originally suspected, it did not…
To quote, "we must not use any reference to transgender no matter how hidden we make it. We need to respect this decision and understand…"

I apologize for the backtrack, but we are back to the original "deal" to completely remove the final sentence (which was deemed non-compliant with the President's Executive Order).
I know Celeste was uncomfortable with this deal, and Gordy was lobbying for you not to accept it.
(If it matters, none of the four other authorship teams given similar deals has accepted it, as of this morning… since our counterproposals have been rejected…)

Thanks again and keep in touch…

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